DOCUMENT RESUME

ED 229 858 EA 015 641

AUTHOR Chambers, Jay G.
TITLE An Analysis of Education Costs across Local School Districts in the State of Missouri, 1975-76. Working Papers in Education Finance, Paper No. 7.
INSTITUTION Education Commission of the States, Denver, Colo. Education Finance Center.
SPONS AGENCY Missouri State Dept. of Elementary and Secondary Education, Jefferson City.
PUB DATE Jan 78
NOTE 71p.; Prepared for the Missouri Department of Elementary and Secondary Education.
PUB TYPE Statistical Data (110) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Administrators; *Cost Indexes; Elementary Secondary Education; Mathematical Models; Operating Expenses; Research Methodology; *Salaries; School District Spending; State Surveys; *Student Transportation; Tables (Data); *Teacher Salaries
IDENTIFIERS *Cost of Education Indexes; *Missouri

ABSTRACT

This report presents both a methodology for educational cost index computation and empirical evidence for determining the extent to which Missouri school district expenditures are beyond the control of local decision-makers. The author demonstrates considerable stability in the teachers' salary index from 1974-75 to 1975-76. The report extends previous index computations to cover variables reflecting the underlying causes of regional cost differentials, including administrators' as well as teachers' salaries and district transportation costs. Section 1 summarizes the document. Sections 2-4 provide a review of the study's methodology, an explanation of salary and cost index computation, and a discussion of the data used. The fifth section's analysis of Missouri's educational expenditures includes alternative specifications for determining teacher/administrator salaries and transportation costs, an alternative computation of regional and district cost indexes, and a brief discussion of educational cost index implementation. The report contains nine tables with data on salary and cost variables. Five appendixes include the results of two separate school personnel and school district surveys, a map of Missouri school districts, an updated estimate of the 1974-75 teachers' salary equation, a salary index computation formula, and 20 pages of data with 1975-76 cost indexes for the roughly 1,100 Missouri districts that offer transportation services. (JBM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED229858

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S. V. Allen

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EA 015 641

PAPERS IN EDUCATION FINANCE

Paper No. 7

AN ANALYSIS OF EDUCATION COSTS ACROSS LOCAL SCHOOL DISTRICTS IN THE STATE OF MISSOURI, 1975-76

Jay G. Chambers
Asst. Prof. of Education and Management
University of Rochester

Under Subcontract to the
Education Finance Center
Education Commission of the States
1860 Lincoln Street
Denver, Colorado 80295

for the

Missouri Department of Elementary and Secondary Education

January 1978

ACKNOWLEDGEMENTS: I would like to express my appreciation to Jerry Toporek for his very able support as computer programmer for this project and to Laurian Whyte, my research assistant, for her diligent efforts to see this project to its completion. I am deeply grateful for the committments of time and effort of both of these individuals.

TABLE OF CONTENTS

		Page
I.	INTRODUCTION AND SUMMARY	1
II.	COST OF SCHOOL PERSONNEL: A REVIEW OF THE METHODOLOGY	3
III.	COMPUTATION OF A COST INDEX: A SIMPLE EXAMPLE	9
IV.	THE DATA	14
V.	ANALYSIS OF EDUCATIONAL COSTS IN MISSOURI SCHOOL DISTRICTS	18
	FOOTNOTES	34
	REFERENCES	35
	APPENDIX A. RESPONSE RATES TO THE PERSONNEL AND DISTRICT SURVEYS	37
	APPENDIX B. DEFINITION OF REGIONAL LABOR MARKETS IN MISSOURI	38
	APPENDIX C. ESTIMATES OF THE TEACHERS' SALARY EQUATION BASED ON THE 1976 STUDY (USING 1974-75 DATA)	41
	APPENDIX D. COMPUTATION OF A SALARY INDEX FROM A LOG_e-LINEAR EQUATION	43
	APPENDIX E. COST INDICES FOR MISSOURI SCHOOL DISTRICTS, 1975-76	44

I. INTRODUCTION AND SUMMARY

The major objective of school finance reform has been to improve the distribution of educational services across local school districts. To attain this objective, state policymakers have directed their efforts toward the development of school finance formulas that account for differences in fiscal capacity and costs of educational services among districts. It is the purpose of this report to present a methodology and some empirical results related to the development of an index of educational costs.

The focus of this effort is to determine the extent to which the level of expenditures on school inputs by local school districts are outside the control of local decision makers. For example, to what extent are the observed variations in the salaries paid to teachers a result of district choice, and to what extent are they a result of forces that are outside local control? In addition to examining variations in teachers' salaries, this report will offer an analysis of the salaries of school administrators and of the costs of transportation services. As in the case of teachers' salaries, the analysis will attempt to isolate the variations in administrative salaries and transportation expenditures associated with factors that are outside local control.

The basic approach used to analyze the costs of educational inputs consists of an analysis of the supply of, and demand for, school inputs and the determination of the degree to which the supply factors (i.e., those factors which are outside the control of local school decision makers) cause differences in the prices (salaries) paid for these school inputs by local school districts. Standard and accepted techniques of supply and demand analysis are applied to each of the categories of school inputs in order to identify the components of input supply.

This report makes four contributions to furthering an understanding of educational cost differentials in Missouri. First, some evidence on the stability of the teachers' salary index is presented. The evidence consists of a comparison of the results of the 1976 study (Odden and Vincent, 1976), which used data for the 1974-75 school year. The evidence indicates that the index of teachers' costs is relatively stable over time, which suggests that it may not be necessary to recalculate the index each year.

Second, the work on teachers' salaries has been extended by inclusion of more extensive data on working conditions, personal characteristics, and some of the underlying causes of cost differentials across regions. The additional data on working conditions and personal characteristics appear to add little to the analysis. However, the analysis of variables intended to reflect some of the underlying causes of regional cost differentials was fruitful. Although the basic patterns of teacher cost differentials were similar to those exhibited in the earlier work and, in fact, the indices themselves were highly correlated, the inclusion of the underlying cost factors revealed a somewhat wider variation in teacher cost differentials than revealed in the previous work.

A third contribution of the current work is the extension of the analysis of costs of school personnel to administrators' salaries. This part of the analysis focuses on the determinants of the salaries of school principals and supervisors. This extension of the analysis of personnel costs permits us to adjust for educational cost differentials associated with variations in both teachers' and administrators' salaries. Although exhibiting a similar pattern to teacher costs, costs of administrative personnel reveal somewhat wider variation.

Finally, the analysis of educational cost differentials has been extended to include transportation services provided by local school districts. As one

might expect, per pupil costs of transportation services tend to be lower in the central city and metropolitan areas than in rural areas. This is partly because fewer children are transported by school districts and since density of student populations tends to be greater in urban and suburban relative to rural settings. Mitigating the latter effects somewhat are the higher costs of living, and hence, higher salaries of transportation personnel and maintenance costs, along with higher insurance rates, that exist in the urban areas.

The remainder of this report is divided into four sections. Section two is a review of the methodology used to analyze the costs of school personnel. Section three explains the computation of the salary and cost indices using a simple example of a teachers' salary equation. The data used for the current study are discussed in section four. Finally, section five discusses and presents an empirical analysis of educational costs across school districts in the State of Missouri. This fifth section includes discussions of alternative specifications of the equations for the determination of teachers' and administrators' salaries, an equation for the determination of transportation costs, a comparison of alternative educational cost indices across various regions and types of districts, and a brief discussion of the implementation of the educational cost index.

II. COSTS OF SCHOOL PERSONNEL: A REVIEW OF THE METHODOLOGY

Variations in earnings, whether in the public or private sector or across different occupations, may be attributed to variations in the characteristics of the individual and of the work place. In general, better education, more experience, and more intelligent or capable workers will receive higher pay, holding all other factors constant. Similarly, an occupation or work place exhibiting certain unattractive features (e.g., particularly hazardous work)

will tend to be associated with higher earnings, holding worker characteristics constant.

Viewed in this context, labor market transactions (i.e., employment decisions of employers and employees) involve a mutual exchange of labors' productive attributes and the attributes of the work place that define working conditions. In the market for school personnel, one finds school decision makers purchasing the characteristics of school personnel and selling a set of working conditions. On the other side of the bargain, school personnel are attempting to sell their personal characteristics while purchasing the attributes of classrooms, schools and school districts. The resulting empirical relationship between personnel salaries, personnel characteristics and working conditions is referred to as the market price schedule for school personnel. Each element in the exchange package (consisting of characteristics of labor and the place of work) exerts some effect on the observed variations in the salaries of school personnel. In particular, the statistical results of an analysis of the market price schedules for school personnel reveal the increment in salary that must be paid in the market for each of the attributes of personnel and the work place. These increments are reflected either explicitly (as may be the case for experience and educational preparation in the "salary schedule") or implicitly (as would be the case for such attributes as teacher verbal ability or such district characteristics as the ethnic composition of pupils) in district salary schedules.

Given all of the immobilities that appear to characterize the markets for public school personnel, one might well question whether the methodology offered above is an adequate representation of reality. One response to this concern is that at least in part this is an "empirical issue" -- or "statistical question." That is, we can investigate the relationship between

salaries, personal characteristics and working conditions and see if it yields results that appear consistent with our expectations.

A second concern relates to the apparent surplus that characterizes the market for school teachers. Does this representation of the market price schedule in any way account for the current disequilibrium, i.e., excess number of teachers, in the teachers' market? Again the answer lies in the examination of the empirical results. Disequilibrium presumably affects not only the overall market price of teachers, but also the implicit prices associated with the personal and work characteristics. Hence, statistical analysis of variations in personnel salaries should automatically reflect this disequilibrium in the market. Suppose the surplus has had the effect of making available to districts a rather large supply of teachers with high verbal ability. Then one would expect to find that the premium paid for verbal ability in the market would decline. Similarly, one may find teachers becoming less averse to teaching classes with greater number of students if these were the only jobs available. If this is the case, then high implicit prices for these characteristics of the work place will not be revealed by the analysis. Nevertheless, they still reflect the current circumstances facing districts in the market and should, therefore, serve as estimates of differential costs across local school districts.

To what extent, then, are variations in the salaries of school personnel (teachers or administrators) a matter of choice to local decision makers? For this purpose, the sets of factors that determine personnel salaries may be divided into two parts:

1. Those factors that are <u>within the control</u> of local school decision makers (i.e., the <u>demand</u> factors) including...

    a. <u>Personal characteristics</u> (e.g., professional experience, educational preparation, quality of college attended, race, and sex), and

b. Terms and conditions of employment (e.g., class size and job responsibilities);

and 2. Those factors that are outside the control of local school decision makers (i.e., the supply factors) including...

a. The relative attractiveness of school and district characteristics (e.g., racial/ethnic composition of pupils and size of district or school), and

b. The economic conditions that characterize the local labor market in which the district is located (e.g., cost of living, competition in the markets for school personnel, and general attractiveness of the region as a place to live).

Table 1 presents a sample of some of the more important variables, along with whether the effects are positive or negative, that appear in selected studies in which factors affecting earnings of teachers (market price schedules) were examined. In general one observes that the teacher quality characteristics such as educational preparation, professional experience, and teacher verbal ability lead to higher salaries, other things equal. Levin (1968) reports that an additional year of schooling is associated with about a seven percent salary differential, an additional year of experience leads to about a one percent salary increment, and each additional unit of verbal ability is associated with about a 0.3 percent differential in a teacher's salary. Antos and Rosen (1975) report very similar results with respect to their sample of teachers. Levin also finds that elementary education majors appear to have a relatively lower implicit market price than any other college major. One would suspect that this is a result of the relatively fewer alternatives facing the elementary education major in the market. In particular, science and mathematics majors, because of their relatively large variety of opportunities in the labor market, appear to receive relatively higher salaries.

For those familiar with the structure of school district salary schedules, which presumably pay teachers with equivalent educational preparation (in years of schooling) and professional experience the same salaries, this result

TABLE 1

THE IMPACT OF SELECTED, SIGNIFICANT VARIABLES
ON THE DETERMINATION OF TEACHERS' SALARIES

Independent Variable	Positive or Negative Effect	Study(ies) in Which Variable Was Used[a]
1. Teacher Traits		
Years of Schooling	+	A & R, C, L, T & W
M.A. Relative to B.A.	+	A & R, C
Years of Experience	+	A & R, C, L, T & W
Years in Present District	+	A & R, C
Teacher Verbal Ability	+	A & R, L
Undergraduate Major[b]		
Math-Science	+	L, T & W
Humanities	+	L, T & W
Social Science	+	L, T & W
Miscellaneous	+	L
Elementary Education (Comparison Group)	---	
Male	+	A & R, C, L, T & W
2. Controllable Working Conditions		
Teacher-Pupil Ratio	-	C
Per Pupil Expenditures -- Instruction Supplies	-	C
3. Uncontrollable District Characteristics		
Percent Minority Pupils	+	A & R, C, L
Percent Pupils -- Free Lunch[c]	+	A & R
Pupil Achievement	-	A & R
Drop-Out Rates	+	A & R
Attendance Rates[d]	-	A & R
Index of School Problems	+	L
Central City Over Rural	+	A & R, C, T & W
Suburban Over Rural	+	A & R, C
District or School Size	+	A & R, C

[a]Code for the studies of teachers salaries: Antos and Rosen (1975) = A & R; Chambers et al. (December 1976) = C; Levin (1969) = L; Turnbull and Williams (December 1976) = T & W.

[b]Each of the undergraduate majors was compared with elementary education majors for determination of relative salary differential.

[c]Free lunches are provided to pupils who are classified as relatively disadvantaged.

[d]Attendance rate refers to the ratio of average daily attendance to a measure of enrollment.

may appear strange. The interpretation of this result in the teachers' market is that for a given salary, a school district will be able to employ elementary education majors who are superior in some other respects to science and mathematics majors.

A similar result appears in analyzing the salary differentials between males and females. Virtually every study of teacher earnings reports that males receive higher salaries than females, other factors held constant. This result is quite consistent with the results of studies of male-female wage differentials in other labor markets and reflects the fact that males possess better opportunities in the nonteaching labor market (which perhaps is, in part, due to discrimination). Once again the interpretation of this apparent anomaly is that for a given salary, a school district will be able to employ "better quality" females than male teachers, other things being equal, and/or that males tend to be attracted to, and hired by, higher paying school districts.

Looking for a moment at some of the determinants of teachers' salaries that are outside the control of local decision makers, one finds that districts with large proportions of minority pupils, with relatively low socioeconomic status pupils, with relatively low achievers and with relatively low attendance rates will tend to pay relatively higher salaries to attract a given quality of teachers' services. In fact one generally finds that districts that exhibit these and other kinds of traits that characterize pupils attending central city schools have to pay relatively higher teachers' salaries. Finally, it has been discovered that districts located in large metropolitan areas tend to pay relatively higher salaries than do nonmetropolitan districts, other things equal. These results probably reflect the relatively intense competition and the relatively higher costs of living that characterize metropolitan

relative to nonmetropolitan regions (see Kenny, Denslow and Goffman, 1975, for a discussion of costs of living differences in urban versus rural regions).

It is in fact the differentials in the salaries of school personnel attributed to the (uncontrollable) supply factors that are of concern in the determination of variation in the cost of educational services. The value of a dollar's worth of state aid and local funds varies across school districts depending upon the conditions that determine the local supply and, therefore, prices of school inputs. For the purpose of measuring these supply-cost differences, it is necessary to determine which of the factors that influence teachers' salaries are in fact outside the control of local school decision makers.

III. COMPUTATION OF A COST INDEX: A SIMPLE EXAMPLE

Before proceeding to a discussion of the statistical analysis of teachers' salaries, administrators' salaries, and transportation cost equations, let us take a simple hypothetical example of a teachers' salary equation and demonstrate how the cost index is computed.

Suppose we have estimated the parameters (i.e., coefficients) of an equation to explain the variation in teachers' salaries. This mathematical relationship is a representation of the market for teachers. Let the hypothetical relationship be given by the following equation.

$$SAL = 8{,}000 + (10 \times GRAD) + (0.50 \times SIZE) \qquad (1)$$

where SAL = the annual salary paid to teachers,

GRAD = the number of graduate hours attained by the teachers,

and SIZE = the size of the school district measured in average daily attendance.

The parameters 8,000, 10 and 0.50 would have been estimated by the regression technique of formal statistical analysis. Of course, a complete equation of the factors that determine teachers' salaries would include many more factors, as outlined in the previous section. However, for the purpose of this example, we are assuming that there are no factors other than graduate hours and district size in order to simplify the explanation. In words, equation (1) says that the annual salary of a teacher is equal to $8,000 plus $10 times the number of graduate hours attained by the teacher plus $0.50 times the district size (ADA). Alternatively stated, for each graduate hour, the market for teachers dictates that a teacher's salary on average in the state will increase by about $10, holding district size constant. For each additional pupil in the district, school officials find that they must pay a salary $0.50 higher in order to attract teachers with a given number of graduate hours.[1] These numbers, which would have been estimated from the regression technique, represent imputed market prices for the attributes GRAD and SIZE. They occur as a result of the long run decisions of school decision makers with regard to the teachers they hire and of teachers with regard to the districts in which they choose to work.

For the purpose of calculating a cost index, it is important that we recognize the distinction in what the variables GRAD and SIZE represent. The variable GRAD is a decision or choice variable for the district. It is regarded as perhaps a measure of teacher quality and more importantly is a variable that can be influenced by school decision makers in terms of the ability of school officials. They may encourage the hiring of teachers with more graduate hours or encourage currently employed teachers to acquire more graduate hours through incentive devices that are often built into salary schedules. On the other hand, the variable SIZE, which presumably affects

the attractiveness of the district as a place to work, is outside the control of local decision makers and is therefore regarded as a component of cost.

In order to show how equation (1) is used to calculate a cost index, let us consider a hypothetical case of two districts, A and B. Assume that district A has an ADA of 1,000 pupils and employs teachers who possess an average of 30 graduate hours each, and that district B has an ADA of 2,000 pupils and employs teachers with an average of 20 graduate hours each. Let SAL(A) and SAL(B) equal the average salaries paid to teachers in districts A and B, respectively. Using equation (1), we have

$$SAL(A) = 8{,}000 + (10 \times 30) + (0.50 \times 1{,}000)$$
$$= 8{,}000 + 300 + 500 + \underline{\$8{,}800}$$

$$SAL(B) = 8{,}000 + (10 \times 20) + (0.50 \times 2{,}000)$$
$$= 8{,}000 + 200 + 1{,}000 = \underline{\$9{,}200}$$

District A is paying $8,800 and district B is paying $9,200. However, to calculate a cost index, we want to hold "quality" (as represented by the variable GRAD in this case), which is the factor under the district's control, constant and determine the variation in teachers' salaries attributable only to differences in district size. In essence, we desire to answer the question, "What would the relative salaries of teachers in districts A and B be if both districts chose to hire the same quality teachers?" For this purpose we need some standard of comparison for the variable GRAD. The average graduate hours purchased by the two districts is 25. Let SAL_A and SAL_B represent the salaries that districts A and B would have paid had they both purchased teachers with an average of 25 graduate hours. Thus, we may write,

$$SAL_A = 8{,}000 + (10 \times 25) + (0.50 \times 1{,}000)$$
$$= 8{,}000 + 250 + 500 = \underline{\$8{,}750}$$

$$SAL_B = 8,000 + (10 \times 25) + (0.50 \times 2,000)$$

$$= 8,000 + 250 + 1,000 = \underline{\$9,250}$$

Suppose that the average teachers' salary in the state is $9,000. Then the salary index for districts A and B would be calculated as follows:

Salary Index for A = 8,750/9,000 = 0.972

Salary Index for B = 9,250/9,000 = 1.028

This index indicates that district A would have to pay salaries 2.8 percent lower than the average district and district B would have to pay salaries 2.8 percent higher than the average district to acquire the same quality teacher (i.e., with graduate hours equal to 25).

In order to calculate the cost index from the salary index, we must weight the salary index by the proportion of the average school district budget that was used to pay for teachers' salaries. Conceptually, this weighting procedure is exactly the same kind of procedure as that used to calculate the consumer price index published by the Bureau of Labor Statistics. The approach is to use a standard "market basket" of consumer goods and services in order to make price comparisons. We are simply applying this concept of the standard "market basket" to the purchase of school inputs. We compare prices (or costs) of teachers across districts by assuming a fixed proportion of the district's budget is used for teachers' salaries. In this way we have not only held constant teacher "quality" by using a constant level of GRAD to calculate the salary index above, but also we have held the number of teachers hired by the district constant by holding the budget allocation constant.

As an example, suppose the average district spends 60 percent of its budget on teachers' salaries.[2] In our example, a district with a budget $100,000

is assumed to spend about $60,000 on teachers' salaries and $40,000 on other current operating expenditures. If there is a five percent increase in teachers' salaries with no change in the number of teachers employed, expenditures on teachers' salaries would amount to $63,000. The budget of the district would now be 63,000 + 40,000 = 103,000 which represents a three percent rise in the budget overall. Thus, the five percent rise in teachers' salaries ends up yielding a three percent rise (3 percent = .60 x 5 percent) in educational costs. It is for this reason that we weight the teachers' salary index by the average proportion of school budgets used to pay teachers' salaries.

A similar approach would have been used had we also estimated a salary equation for administrators and/or an expenditure equation for transportation to isolate cost factors. In each case we would determine the extent to which spending variations across local school districts are outside the control of local decision makers and then calculate an index of variations in administrators costs and transportation costs based on these uncontrollable factors. Then to calculate the index of educational costs we would weight each of the separate indices (i.e., the teachers' salary index, the administrators' salary index and the transportation cost index) by the average proportion of district budgets spent on each category of expenditure. Using the figures for Missouri school districts, we find that the percentage of current school budgets allocated, on average, to teachers' salaries, administrators' salaries and transportation services are 63.53 percent, 8.56 percent and 5.17 percent, respectively

Formally, the cost index derived from the three indices of cost is given by the following expression.

$$\text{COST INDEX}_i = (.6353 \times \text{TSALINDX}_i) + (.0856 \times \text{ASALINDX}_i) + (.0517 \times \text{TRANINDX}_i) + 0.2274 \quad (2)$$

where COST INDEX_i = the educational cost index for district i,

TSALINDX_i = the teachers' salary index for district i,

ASALINDX_i = the administrators' salary index for district i,

and TRANINDX_i = the transportation cost index for district i.

The 0.2274 is included simply to account for the remainder of the school district budget for which we have calculated no separate index of costs.

IV. THE DATA

The data used for the analysis of personnel salaries were derived from various sources of the Department of Elementary and Secondary Education (DESE) in Missouri, survey questionnaires sent out to samples of school personnel, and various publications of the Census Bureau. Some additional data available from DESE, as well as items gathered through the survey questionnaires and the more extensive use of Census data allowed us to extend the work presented in the 1976 report to the Governor's Conference on Education (Odden and Vincent, 1976).[3] Information on the response rates to the surveys is contained in Appendix A to this report.

The data used for the analysis of transportation costs were derived primarily from the DESE, the Census, and the National Climatic Center. All but eight districts in Missouri were used in the statistical analysis.[4]

All of the statistical analyses were carried out for the 1975-76 school year. Tables 2 and 3 present the symbols and definitions of the variables used in the analyses of the costs of personnel and transportation, respectively.

TABLE 2

VARIABLE NAMES AND DEFINITIONS FOR ANALYSIS OF PERSONNEL SALARIES

Variable Name	Variable Definition	Source
TCHR SAL	annual salary of teacher	IF
ADMIN SAL	annual salary of administrator	IF
EDUC NO BA	=1 if no B.A. degree earned	IF
EDUC BA	=1 if B.A. degree is highest degree	IF
EDUC 15-29 GRAD HRS	=1 if earned 15-29 graduate hours	IF
EDUC 30-44 GRAD HRS	=1 if earned 30-44 graduate hours	IF
EDUC 45-59 GRAD HRS	=1 if earned 45-59 graduate hours	IF
EDUC 60 or more GRAD HRS	=1 if earned 60 or more graduate hours	IF
EDUC MA	=1 if Masters is highest degree	IF
EDUC ED SPEC CERT	=1 if Educational Specialist Certificate is highest degree	IF
EDUC DOC	=1 if Doctorate is highest degree	IF
EXP TOTAL YRS	total years of experience	IF
EXP TOTAL YRS IF 20 YRS	total years experience if 20, zero otherise	IF
EXP PRESENT DIST	years experience in present district	IF
EXP PRESENT DIST IF 10-19 YRS	years in present district if 10-19 years, zero otherwise	IF
EXP PRESENT DIST IF 20 YRS	years in present district if 20 years, zero otherwise	IF
EXP 40 YRS--YES	=1 if more than 40 years experience	IF
EXP 40 YRS--NO	=1 if 40 or less years experience	IF
$(\text{EXP TOTAL YRS})^2$	total years experience -- squared	Calculated
$(\text{EXP PRESENT DIST})^2$	years experience in present district -- squared	Calculated
MATH-SCI TCHR	=1 if a math or science teacher	AF
PHYS EDUC TCHR	=1 if a physical education teacher	AF
BUS EDUC TCHR	=1 if a business education teacher	AF
VOC EDUC TCHR	=1 if a vocational education teacher	AF
ELEM TCHR	=1 if an elementary school teacher	AF
REGION 1	=1 if district is located in region 1 for i = 1, ..., 14	APPENDIX B
DIST SIZE	number of pupils in the district	DF
DIST SIZE 200 ADA	=1 if district has less than 200 ADA	DF
DIST SIZE 200-499 ADA	=1 if district has between 200 and 499 ADA	DF
DIST SIZE 500-999 ADA	=1 if district has between 500 and 999 ADA	DF
DIST SIZE 1000-4,499	=1 if district has between 1,000 and 4,499 ADA	DF
DIST SIZE 4500-7499 ADA	=1 if district has between 4,500 and 7,499 ADA	DF
DIST SIZE 7500-19999 ADA	=1 if district has between 7,500 and 19,999 ADA	DF
DIST SIZE 20000-30000 ADA	=1 if district has between 20,000 and 30,000 ADA	DF
COLUMBIA	=1 if employed in Columbia City School District	DF
SPRINGFIELD	=1 if employed in Springfield City School District	DF
KANSAS CITY	=1 if employed in Kansas City School District	DF
ST. JOSEPH	=1 if employed in St. Josepn City School District	DF
SUBURB FAST GRWTH	=1 if employed in a Fast Growth Suburban District	DF
SUBURB SLOW GRWTH	=1 if employed in a Slow Growth Suburban District	DF
RURAL	=1 if employed in a rural district	DF
PERCENT MINORITY PUPILS	percent of minority pupils in district	DF
PERCENT BLACK PUPILS	percent of black pupils in the district	HEW
PERCENT REMED READ PUPILS	percent of pupils enrolled in remedial reading programs in the district	DF
PERCENT ELEM PUPILS	percent of elementary pupils in district	DF
DIST. DENSITY, REGION	number of districts per square mile in REGION in which district is located	CENSUS
POP. DENSITY, COUNTY	population per square mile in the county in which district is located	CENSUS
PRICE AGR LAND	price per acre of agricultural land in county in which district is located	CENSUS

Source Codes: IF = Indicative File; AF = Assignment File; PS = Personnel Survey; DF = District File; APPENDIX B = Appendix B to this report; HEW = Director of Public Elementary and Secondary Schools, 1972, Enrollment and Staff by Race/Ethnic Origin; CENSUS = City and County Data Book, 1972. The indicative and assignment files as well as the district files are created from information regularly gathered by the Department of Elementary and Secondary Education in Missouri.

TABLE 3

VARIABLE NAMES AND DEFINITIONS FOR ANALYSIS
OF TRANSPORTATION EXPENDITURES

Variable Name	Variable Definition	Source
TOTAL TRANS EXPEND	total expenditure on transportation services	DESE
MILEAGE/PUPIL	total mileage traveled per pupil transported	DESE
AVG DAILY PUPILS TRANS	average daily number of pupils transported	DESE
CONTRACTED AVG DAILY PUPILS TRANS	average daily number of pupils transported by private contract	DESE
PERCENT URBAN POP. IN COUNTY	percent of population in county living in urban areas	CENSUS
PUPILS/SQ.MI.	pupils per square mile living within district boundaries	EST.
DIST SIZE	number of pupils in the district	DESE
PERCENT CHG IN DIST SIZE	percent change in number of pupils between 1974-75 and 1975-76 school years	DESE
INCHES OF SNOW	actual number of inches of snow that fell in the climatic region during 1975-76	NCC
ELEMENTARY DISTRICT YES	=1 if district is elementary district	DESE
ELEMENTARY DISTRICT NO	=1 if district is unified district	DESE

Source Codes: DESE = sources of the Department of Elementary and Secondary Education in Missouri; CENSUS = City and County Data Book, 1972, a publication of the Census Bureau; NCC = National Climatic Center; EST. = an estimate of square mileage in the district based on the proportion of the county which is within district boundaries times the square mileage in the county which is available from CENSUS.

A brief discussion of the definition and boundaries of the regional labor markets in Missouri is contained in Appendix B.

Most of the variables used in the analysis appear in the equations in one of three forms: (1) as the natural logarithm of the variable (i.e., LOG_e), (2) in the form of a percent (e.g., PERCENT BLACK PUPILS), or (3) as a dichotomous dummy variable. For the variables entered in LOG_e form, the coefficients presented in the tables which follow may be interpreted as elasticities (i.e., the percentage change in the dependent variable -- such as teachers' salary -- that occurs in response to a one percent change in the particular independent or explanatory variable -- such as district size).

Suppose the estimated coefficient in the teachers' salary equation of LOG_e (DIST SIZE) were equal to 0.20. This would indicate that a one percent increase in district size would increase teachers' salaries by 0.20 percent. For variables entered in percent form the interpretation of the coefficient is essentially the same as for the LOG_e variables.

Variables entering as dummy variables simply take on the value one or zero depending on whether the individual teacher or administrator possesses the particular characteristic or not. For example, the variable MALE equals one if the individual is male and zero if female. The variable EDUC MA equals one if the individual's highest college attainment was a Masters degree and equals zero otherwise. The coefficients of these variables indicate the approximate proportionate effect on the dependent variable of the existence of the particular characteristic. Suppose the coefficient of EDUC MA equals 0.11. Then an individual with a Masters degree will earn, on average, about 11 percent more than an individual with only a BA degree (where BA degree has been chosen as the comparison group).

The coefficients of variables entered in some other form may be interpreted to indicate the proportionate impact on the dependent variable of a one unit change in the particular variable. For example, the variable CLASS HOURS appears in the administrator salary equation with a coefficient equal to -0.00426. This indicates that if an administrator teaches one additional class hour, his or her salary will decline, on average, by 0.43 percent.

V. ANALYSIS OF EDUCATIONAL COSTS IN MISSOURI SCHOOL DISTRICTS

In the analysis which follows, a number of alternative indices of educational costs have been calculated based on various combinations of indices of teachers', administrators' and transportation costs. The individual indices of teachers', administrators' and transportation costs are subsequently referred to as component indices as they refer to the costs of various components of local school district budgets for educational services. The term cost index shall refer to the weighted combination(s) of the component indices where the weights are defined as the proportion of school district budgets spent on each respective school input (i.e., teachers, administrators, transportation and all other inputs) by the average district within the state of Missouri.

To calculate each of the component indices involves isolating the variations in teachers' salaries, administrators' salaries and transportation expenditures caused by factors outside the control of local school districts. Alternatively stated, "How much more or less than the average district would each individual district have to pay to provide the same level of educational services, where level of educational services is reflected by a given set of teacher and administrator characteristics and a given kind of level of transportation services per pupil?"

In the salary equations for teachers and administrators presented in the following tables, the explanatory variables include educational preparation, professional experience (both over-all and with the present district), job title and/or responsibilities, sex, income of families within the school district and a number of variables intended to reflect various characteristics of the pupils in the district and the region or labor market in which the district is located. A number of other characteristics of personnel were examined (e.g., verbal ability, college quality and race), but were not statistically significant as determinants of personnel salaries, and thus are not included in the tables.

In our initial attempts at estimating teacher costs, a set of dichotomous dummy variables is used to reflect type of district and the region in which the district is located along with indications of district size and racial composition of the pupils, while holding constant variations in personal characteristics of teachers. These estimates of teacher costs are subsequently referred to as the "simple" specification. Estimated coefficients for the simple specification of the model are presented in Table 4. This simple approach unfortunately tends to hide some of the underlying causes of salary variations and make somewhat difficult a clear, unambiguous interpretation of the results. For example, suburban districts or districts located in or around metropolitan regions exhibit higher teacher costs. In part this may be due to higher costs of living or greater competition in the market for teachers. Moreover, to some extent these factors may be mitigated by the amenities associated with living in particular regions or in metropolitan areas (e.g., the relatively greater consumption opportunities and greater access to cultural activities). Finally, the simple approach using dummy variables to pick up

TABLE 4

DETERMINANTS OF TEACHERS' SALARIES IN MISSOURI SCHOOL DISTRICTS, 1975-76: "SIMPLE" SPECIFICATIONS[a]

[Dependent Variable = LOG_e (TCHR SAL)]

Explanatory Variables (1)	Estimated Coefficient (2)	Absolute t-Ratio (3)	% Effect on Teachers' Salaries (4)
(1) EDUC NO BA	0.05378	4.26	5.95%
(2) EDUC BA	-------	----	-----
(3) EDUC 15-29 GRAD HRS	0.03858	7.43	3.93
(4) EDUC 30-44 GRAD HRS	0.02136	3.34	2.16
(5) EDUC 45-59 GRAD HRS	0.04809	5.24	4.93
(6) EDUC 60 OR MORE GRAD HRS	0.08570	8.58	8.95
(7) EDUC MA	0.11249	18.44	11.91
(8) EDUC CO SPEC CERT	0.13468	5.17	14.42
(9) EDUC OOC	0.05391	1.29	5.54
(10) EXP TOTAL YRS	0.01324	20.32	1.33
(11) EXP TOTAL YRS IF $\geq$ 20	-0.00682	13.58	-0.68
(12) EXP PRESENT DIST	0.00871	12.28	0.87
(13) EXP PRESENT DIST, IF 10-19 YRS	-0.00115	2.51	-0.12
(14) EXP PRESENT DIST, IF $\geq$ 20 YRS	-0.00355	6.46	-0.35
(15) EXP >40 YRS YES	-0.12603	6.49	-11.84
(16) EXP >40 YRS NO	-------	----	----
(17) LOG_e (EXPEND/PUPIL)	0.24657	14.53	0.25
(18) MEDIAN FAMILY INCOME	0.00001	10.07	0.09
(19) HIGH SCH TCH YES	0.01325	3.84	1.33
(20) HIGH SCH TCH NO	-------	----	----
(21) PERCENT NEW TCHRS	-0.00074	2.83	-0.07
(22) TEACHER-PUPIL RATIO	-2.31430	9.26	-0.12
(23) SEX MALE	0.04377	12.47	4.47
(24) SEX FEMALE	-------	----	----
(25) REGION 1	-0.03320	3.53	-3.27
(26) REGION 2	-0.05097	5.11	-5.02
(27) REGION 3	-0.09027	7.07	-8.63
(28) REGION 4	-0.09687	7.76	-9.23
(29) REGION 5	-0.02450	2.55	-2.42
(30) REGION 6	-0.06238	5.80	-6.05
(31) REGION 7	-0.05419	6.47	-5.27
(32) REGION 8	0.00538	0.59	0.54
(33) REGION 9	-0.03362	2.54	3.31
(34) REGION 10	-0.02878	2.94	-2.84
(35) REGION 11	-0.0377	3.76	-3.70
(36) REGION 12	-0.07043	7.63	-6.80
(37) REGION 13	-0.04871	4.28	-4.71
(38) REGION 14	-------	----	----
(39) DIST SIZE <200 ADA	-------	----	----
(40) DIST SIZE 200-499 ADA	0.06750	4.99	6.98
(41) DIST SIZE 500-999 ADA	0.10747	7.58	11.35
(42) DIST SIZE 1000-4499 ADA	0.16597	11.47	18.05
(43) DIST SIZE 4500-7499	0.20770	13.06	23.03
(44) DIST SIZE 7500-19999 ADA	0.19954	12.83	22.08
(45) DIST SIZE 20000-30000 ADA	0.19345	10.89	21.34
(46) COLUMBIA	0.0	0.0	0.0
(47) SPRINGFIELD	0.11467	7.49	12.15
(48) KANSAS CITY	0.23806	11.22	26.88
(49) ST. JOSEPH	0.0	0.0	0.0
(50) ST. LOUIS	0.24611	11.47	27.65
(51) SUBURB FAST GROWTH	0.03321	4.09	3.38
(52) SUBURB SLOW GROWTH	0.04578	5.36	4.68
(53) RURAL	-------	----	----
(54) PERCENT MINORITY PUPILS	-0.00042	2.43	-0.04
(55) PERCENT ELEM PUPILS	-0.00005	0.16	-0.005
(56) ELEM DIST YES	0.03530	1.88	3.66
(57) ELEM DIST NO	-------	----	----
(58) CONSTANT	7.15056	----	----

R^2 = .86 F(48,3759) = 479 STANDARD ERROR = 0.09033

Sample Size = 3,808

[a]This equation is a duplication of the 1974-75 equation presented in Table C-1 in Appendix C. The 1974-75 equation was estimated as part of the 1976 study. The teachers' salary index calculated from this equation is based on the variations in variables 25 through 55. These are the variables which are outside district control. Variables 1 through 24 and 56 to 58 are held constant. See Appendix D for an example of how the salary index is calculated from a log - linear teachers' salary equation.

these kinds of factors may not exhibit the full variations which occur across regions, counties, or districts that might be reflected in continuous variables which exhibit a relatively wider variation.

Our subsequent work has attempted to isolate more explicitly the underlying causes of some of these cost variations. The results of this subsequent work are reported in Table 5 for teachers and Table 6 for administrators and shall be referred to as the "alternative" specification. Much work may yet be done to ensure the accuracy of estimates of educational costs, but, nevertheless, the results that are discussed below reveal that the models of school personnel markets used for this analysis have captured a rather large proportion of the variations in educational costs and the results appear to be intuitively appealing.

Based upon the "simple" and "alternative" specifications of the teachers' salary equations presented in Tables 4 and 5, respectively, one can make two kinds of comparisons. First, the simple specification which we estimated for the 1975-76 school year is a duplication of the equation estimated as part of the 1976 study for the 1974-75 school year. The equation estimated for the 1976 study is presented in Table C-1 in Appendix C to this report. Of interest is the comparison of the indices calculated using this same specification for the two years. This comparison over time provides some evidence of the stability of the index. The importance of this information is to determine how often the index would have to be recalculated. For example, can the index calculated for any particular year serve as a good estimate of the index for one or more subsequent years?[5]

A second comparision is between the "simple" and the "alternative" specifications. From this comparison one can assess the nature of the data requirements necessary to estimate cost indices. In particular, is it necessary to gather detailed data on district and regional characteristics or do the dummy variables provide adequate distinctions in isolating the variations in costs across districts?

TABLE 5

DETERMINANTS OF TEACHERS' SALARIES
IN MISSOURI SCHOOL DISTRICTS, 1975-76:
AN ALTERNATIVE SPECIFICATION [a]
[DEPENDENT VARIABLE = LOG_e (TCHR SAL)]

Explantory Variables (1)		Estimated Coefficient (2)	Absolute t-Ratio (3)	% Effect on Tchr's. Salaries [b] (4)
(1)	EDUC NO BA	-0.11544	2.97	-10.902
(2)	EDUC BA	-------	----	------
(3)	EDUC 15-29 GRAD HRS	0.03649	3.39	3.72
(4)	EDUC 30-44 GRAD HRS	0.02766	1.79	2.29
(5)	EDUC 45-60 GRAD HRS	0.04021	2.31	4.10
(6)	EDUC 60 OR MORE GRAD HRS	0.08225	4.42	8.57
(7)	EDUC MA	0.11243	9.33	11.90
(8)	EDUC ED SPEC CERT	0.16495	4.05	17.93
(9)	EDUC DOC	0.06402	1.14	6.61
(10)	EXP TOTAL YRS	0.01836	10.17	1.85
(11)	$(EXP\ TOTAL\ YRS)^2$	-0.00039	8.12	-0.08
(12)	EXP PRESENT DIST	0.01434	6.35	1.44
(13)	$(EXP\ PRESENT\ DIST)^2$	-0.00028	3.65	-0.06
(14)	MATH-SCI TCHR	-0.01843	2.00	-1.83
(15)	PHYS EDUC TCHR	0.03484	2.60	3.55
(16)	BUS EDUC TCHR	-0.02833	2.01	-2.79
(17)	VOC EDUC TCHR	0.06291	4.44	6.49
(18)	ELEM TCHR	-------	----	------
(19)	CONFINED TO GEOG. LOC.--YES	-0.02004	2.97	1.98
(20)	CONFINED TO GEOG. LOC.--NO	-------	----	------
(21)	SEX -- MALE	0.02602	3.43	2.64
(22)	SEX -- FEMALE	-------	----	------
(23)	LOG_e(FAMILY INCOME)	0.24948	11.05	0.249
(24)	PERCENT BLACK PUPILS	0.00073	2.27	0.073
(25)	PERCENT REMED. READ. PUPILS	0.00149	1.99	0.149
(26)	LOG_e(DIST SIZE)	0.18776	7.44	0.19
(27)	$[LOG_e(DIST\ SIZE)]^2$	-0.00933	6.10	0.02
(28)	LOG_e(DIST. DENSITY, REGION)	0.06411	4.22	0.064
(29)	LOG_e(POP. DENSITY, COUNTY)	-0.01797	3.38	-0.018
(30)	LOG_e(PRICE AGRI. LAND)	0.04430	4.49	0.044
(31)	CONSTANT TERM	5.85715	----	------

R^2 = .86 F(26, 882) = 214.4 STANDARD ERROR = 0.09083

Sample Size = 909

[a] The index of teachers' salaries calculated from this equation is based on variables 24 through 30. All other variables are held constant.

[b] The figures presented in Column 4 represent the percentage effect on teachers' salaries for the dummy variables and elasticities for the variables in LOG or percentage form. For the variables reflecting experience (EXP), the number in Column 4 reflects the percentage effect on salaries of each additional year of experience. For the squared terms, Column 4 reflects the percent rate of change in the percentage effect. For experience, the percentage increase in salaries is 1.85 which decreases at a rate of .08 percent per year.

TABLE 6

DETERMINANTS OF ADMINISTRATOR SALARIES IN MISSOURI SCHOOL DISTRICTS, 1975-76: [DEPENDENT VARIABLES = LOG_e (ADMIN SAL)][a]

Explanatory Variables (1)		Estimated Coefficient (2)	Absolute t-ratio (3)	% Effect on Admin. Salaries[b] (4)
(1)	EDUC BA	-----	-----	-----
(2)	EDUC 60 OR MORE GRAD HRS	0.02011	2.08	2.03%
(3)	EDUC MA	0.09810	5.83	10.31
(4)	EDUC ED. SPEC. CERT.	0.12972	5.60	13.85
(5)	EDUC DOC	0.18573	7.19	20.41
(6)	EXP TOTAL YRS	0.01732	10.62	1.75
(7)	EXP $(TOTAL\ YRS)^2$	-0.00030	7.95	-0.06
(8)	EXP PRESENT DIST	0.00315	4.46	0.32
(9)	ELEM PRIN OR ASST PRIN	-----	-----	-----
(10)	JR HIGH SCH ASST PRIN	-0.02742	1.69	-2.70
(11)	JR HIGH SCH PRIN	0.09482	6.83	9.95
(12)	HIGH SCH ASST PRIN	0.02977	2.09	3.02
(13)	HIGH SCH PRIN	0.16083	13.91	17.45
(14)	ELEM SUPV	-0.14484	9.38	-13.48
(15)	JR HIGH SCH SUPV	-0.02244	0.56	-2.22
(16)	HIGH SCH SUPV	-0.06928	2.85	-6.69
(17)	VOC EDUC SUPV	0.010790	2.38	11.39
(18)	GENERAL SUPV	-0.01804	0.95	-1.79
(19)	ELEM DIRECTOR	0.08267	4.68	8.62
(20)	CLASS HOURS	-0.00426	5.23	-0.43
(21)	SEX--MALE	0.06413	5.75	6.62
(22)	SEX--FEMALE	-----	-----	-----
(23)	LOG_e (FAMILY INCOME)	0.15845	6.46	0.16
(24)	ELEM DIST--YES	0.22388	7.99	25.09
(25)	ELEM DIST--NO	-----	-----	-----
(26)	LOG_e (DIST SIZE)	0.45661	15.91	0.46
(27)	$[LOG_e(DIST\ SIZE)]^2$	-0.02346	13.24	-0.05
(28)	PERCENT BLACK PUPILS	0.00034	1.19	0.034
(29)	LOG_e (DIST. DENSITY, REGION)	0.09618	5.07	0.096
(30)	LOG_e (POP. DENSITY, COUNTY)	-0.01157	1.73	-0.012
(31)	LOG_e (PRICE AGRI LAND)	0.06951	5.99	0.070
(32)	CONSTANT TERM	5.84458	-----	-----

R^2 = .87 F(27,927) = 238.0 STANDARD ERROR = 0.10922

Sample Size = 955

[a] The administrators' salary index calculated from this equation is based on variables 26 through 31. All other variables are held constant.

[b] The figures presented in Column 4 represent the percentage effect on administrator's salaries for the dummy variables and elasticities for the variables in LOG_e or percentage form. For the variables reflecting experience (EXP), the number in Column 4 reflects the percentage effect on salaries of each additional year of experience. For the variable CLASS HOURS, the number in Column 4 represents the percentage effect on salaries resulting from an increase of one hour of time spent teaching by administrators.

The "Alternative" Specification

Some new developments in urban economics have focused on isolating particular sets of variables that reflect cost of living variations across regions. It has been suggested that cost of living differences across regions will be related to the cost of producing goods that are not traded across regions (i.e., goods which are produced and consumed locally). Differences in the cost of producing these local goods will be related to the cost of immobile factors of production such as land. For this purpose, the price per acre of agricultural land within a county is used as a proxy for the base price of land.[6] This variable is included in both the equations for teachers' and administrators' salaries. Estimates indicate that a one percent increase in the base price of agricultural land leads to a .04 percent increase in teachers' salaries and approximately a .07 percent increase in the salaries of administrators.

Another specific factor affecting teacher and administrator costs is competition in the market. The number of districts per square mile in the labor market (i.e., region) in which the district is located is used as a proxy for competition in the market for school personnel.[7] The greater the number of districts per square mile within a particular region, the greater the intensity of competition for school personnel services and the higher the salaries of those personnel.

Population density, another variable included in the alternative specification, is intended to reflect a number of factors that have opposing effects on salaries. Population density may be correlated with both the disamenities (e.g., crowding or pollution) as well as the amenities of living in urban areas (e.g., accessibility of consumption opportunities or cultural opportunities). Much of the empirical work on the impact of population density on wages has found a negative impact suggesting that the amenities correlated with population density are relatively more highly valued than the disamenities,[8]

(i.e., persons will accept lower salaries, other things held constant, because of the amenities). The results presented in Tables 4 and 5 corroborate the previous work indicating that regions with relatively higher population densities exhibit lower salaries, all else equal.

The kinds of pupils enrolled in a district also tend to affect salaries of school personnel. In particular, one finds that larger proportions of black pupils tend to induce increases in teachers' as well as administrators' salaries (although the relationship in the administrator salary equation is not statistically significant) and that greater proportions of low ability pupils (as reflected by percent of pupils in remedial reading programs) tends to increase teachers' salaries. Ideally, we would have preferred a variable such as average entry level test scores of first grade pupils as an indication of the average kind of student with which local school districts have to work. Presumably, higher ability pupils will be easier to teach and will tend to be an attractive characteristic of local districts.

The variable "proportion of pupils in remedial reading programs" can be manipulated by school districts in a number of ways. A district, by providing better quality educational services, can reduce the number of pupils requiring remedial reading programs. Hence, this variable may be controllable in the long run by the local district.[9]

One interesting result found for both teacher and administrator costs is that the relationship between compensation and district size is not monotonic. The estimates reveal a quadratic relationship, with salaries of teachers increasing with district size up to about 23,500 pupils and decreasing thereafter. Similarly, administrators' salaries increase up to about 17,000 pupils and decrease thereafter. Further work will be necessary to determine whether in fact this relationship simply flattens out after the 23,500 and 17,000 pupil levels

for teachers and administrators. But for now this is an interesting result in that the relationship does reach a peak within a range of district size that exists within our sample.

Income of families within the school district is found to have a positive impact upon both teachers' and administrators' salaries. Although this variable is outside local district control, it is believed that it picks up some of the unmeasured characteristics of teachers and administrators that are desired by local school districts. Hence, it is not included in the calculation of the cost index.

Transportation Costs

In addition to estimating personnel cost differentials, we have estimated an index of transportation costs. The regression equation used to estimate transportation costs is presented in Table 7. The explanatory variables include average daily pupils transported (both by private contractors as well as by the local districts), bus mileage traveled per pupil transported, percent urban population in the county, pupils per square mile living in the districts, district size, inches of snowfall in the climatic region and whether the district was an elementary district or not. Percent urban population in the county was intended to pick up cost of living differentials and the impact on the salaries of transportation personnel as well as possible differences in crime, maintenance, and insurance costs between urban versus rural areas. Pupils per square mile reflects dispersion of pupils, which is an obvious factor in transportation costs: greater dispersion (i.e., lower density) leads to higher costs of services, all else equal. Once controlling for pupil density in the district, mileage per pupil would seem to be largely controllable by the district. Districts providing more frequent bus service or more convenient service in other ways may tend to drive greater numbers of miles per pupil. If this is the case, then mileage per pupil

TABLE 7

DETERMINANTS OF TRANSPORTATION EXPENDITURES IN MISSOURI SCHOOL DISTRICTS, 1975-76: [DEPENDENT VARIABLE = LOG_e (TOTAL TRANS EXPEND)][a]

Explanatory Variables (1)	Estimated Coefficient (2)	Absolute t-Ratio (3)	% Effects on Trans Expend. (4)
(1) LOG_e (MILEAGE/PUPIL)	0.44471	13.07	0.44
(2) LOG_e (AVG DAILY PUPILS TRANS)	0.73028	18.35	0.73
(3) LOG_e (CONTRACTED AVG DAILY PUPILS TRANS)	0.01275	3.65	0.01
(4) PERCENT URBAN POP. IN COUNTY	0.00090	2.14	0.09
(5) LOG_e (PUPILS/SQ. MI.)	-0.05469	3.17	-0.05
(6) LOG_e (DIST SIZE)	0.27981	6.23	0.28
(7) PERCENT CHG IN DIST SIZE	-0.00738	3.94	-0.74
(8) LOG_e (INCHES OF SNOW)	0.07038	2.76	0.07
(9) ELEMENTARY DISTRICT--YES	-0.16739	3.60	-15.41
(10) ELEMENTARY DISTRICT--NO	-------	----	-----
(11) CONSTANT TERM	4.44136	----	-----

R^2 = .95 F(9,541) = 1,159 Standard Error = 0.23130

Sample Size = 551

[a]The index of transportation costs calculated from this equation is based upon variables 2 and 4 through 10. All other variables are held constant.

is controllable. Private contract service is also controllable. It appears that private service is more expensive than service provided by the district, although this may be illusory since some of the capital costs of transportation services may not be reflected explicitly by local districts even though these are in fact true costs to society of providing these services. Districts in regions with greater amounts of snowfall also appear to incur higher transportation costs perhaps associated with greater frequency of repair and poorer gas mileage. District size may be reflecting some of the economies of scale (since total expenditures tend to rise faster than district size) and the larger number of pupils per school that tend to exist within larger districts. It should be noted that a number of alternative ways of specifying the controllable versus the uncontrollable variables is possible for the analysis of transportation costs. The basic information for computing alternative transportation cost indices is contained in Table 7. We have simply provided one alternative specification of the uncontrollable variable (see the footnote to Table 7) for purposes of comparing the indices. The basic comparisons we make are not likely to be altered significantly by alternative specifications.

Educational Cost Indices: Some Comparisons

The alternative educational cost indices are calculated from the estimated coefficients and the component indices presented in the footnotes to Tables 4, 5, 6, and 7 (all of which are for the 1975-76 school year) and from the teachers' salary equation estimated as part of the 1976 study (for the 1975-76 school year). Comparisons of the alternative cost indices are made in Table 8 on the basis of the mean, standard deviation, minimum and maximum for each index across different categories of districts (i.e., CENTRAL CITY and SUBURBAN versus RURAL DISTRICTS) and districts located in different regions of the state (i.e., KANSAS CITY METROPOLITAN AREA, ST. LOUIS METROPOLITAN AREA,

TABLE 8

DESCRIPTIVE STATISTICS FOR ALTERNATIVE COST INDICES FOR MISSOURI SCHOOL DISTRICTS

COST INDEX[a]	DESCRIPTIVE STATISTIC	ALL DISTRICTS	CITY AND SUBURBAN DISTRICTS	RURAL DISTRICTS	REGION 5 (KANSAS CITY METRO. AREA)	REGION 8 (ST. LOUIS METRO. AREA)	REGIONS OTHER THAN 5 AND 8
(1) Index Based on Simple Teachers' Salary Index, 1974-75, Derived from Estimates in TABLE C-1	Mean	1.002	1.080	.985	1.052	1.097	.983
	Std. Dev.	.054	.051	.036	.044	.045	.034
	Min.	.915	.965	.915	.970	.998	.915
	Max.	1.168	1.168	1.088	1.120	1.168	1.108
(2) Index Based on Simple Teachers' Salary Index, 1975-76, Derived from Estimates in TABLE 4	Mean	1.002	1.069	.987	1.044	1.076	.986
	Std. Dev.	.053	.046	.042	.049	.047	.042
	Min.	.906	.974	.906	.947	.965	.906
	Max.	1.138	1.138	1.099	1.114	1.138	1.120
(3) Index Based on Alternative Teachers' Salary Index, 1975-76, Derived from Estimates in TABLE 5	Mean	1.003	1.072	.988	1.057	1.076	.987
	Std. Dev.	.062	.060	.051	.055	.067	.049
	Min.	.811	.949	.811	.951	.875	.811
	Max.	1.185	1.185	1.115	1.160	1.185	1.115
(4) Index Based on Alternative Teachers' Salary Index and Administrators' Salary Index, 1975-76, Derived from Estimates in TABLE 5 and 6	Mean	1.005	1.095	.985	1.075	1.099	.984
	Std. Dev.	.079	.077	.065	.073	.086	.063
	Min.	.766	.936	.766	.934	.843	.766
	Max.	1.230	1.230	1.145	1.199	1.230	1.145
(5) Index Based on Alternative Teachers' Salary Index, Administrators' Salary Index, and Transportation Cost Index, 1975-76, Derived from Estimates in TABLE 5, 6 & 7.	Mean	1.007	1.090	.989	1.072	1.095	.987
	Std. Dev.	.072	.069	.059	.068	.076	.058
	Min.	.785	.937	.785	.937	.851	.785
	Max.	1.196	1.196	1.139	1.164	1.196	1.139

[a]Let TSIC = the simple teachers' salary index, 1974-75, from Table C,
TSI4 = the simple teachers' salary index, 1975-76, from Table 4,
TSI5 = the alternative teachers' salary index , 1975-76, from Table 5
ASI6 = the administrators' salary index, 1975-76, from Table 6
TRI7 = the transportation cost index, 1975-76 from Table 7
and CII = the over all index of educational costs where I = 1,...,5 corresponds to the number in Table 8 above.

$$CI1 = .6353 \cdot TSIC + .3647$$

$$CI2 = .6353 \cdot TSI4 + .3647$$

$$CI3 = .6353 \cdot TSI5 + .3647$$

$$CI4 = .6353 \cdot TSI5 + .0856 \cdot ASI6 + .2791$$

$$CI5 = .6353 \cdot TSI5 + .0856 \cdot ASI6 + .0517 \cdot TRI7 + .2274$$

where .6353, .0856 and .0517 are the average proportions of school district budgets allocated to teachers' salaries, administrators' salaries, and transportation services, respectively. The remaining figures .3647, .2791 and .2274 are the residual expenditure components for which no cost indices were calculated in each of the respective cost indices CII above.

BEST COPY AVAILABLE

and ALL OTHER REGIONS OF THE STATE). In addition these descriptive statistics are calculated for ALL DISTPICTS. The indices for each district are given in Appendix E.

The patterns of cost variation exhibited by each of the educational cost indices (1 through 5 in Table 8) are essentially the same. Each index indicates that CITY AND SUBURBAN DISTRICTS pay about eight percent higher than average costs while RURAL DISTRICTS pay about two percent lower than average costs. Moreover, the KANSAS CITY AND ST. LOUIS METROPOLITAN AREAS exhibit about five to ten percent higher costs, respectively, while all other regions (i.e., REGIONS OTHER THAN 5 AND 8) taken together exhibit one to two percent lower than average costs of services.

Comparing across indices, one finds that the two indices based upon the simple specification of the teachers' salary equation (i.e., indices 1 and 2 in Table 8) are very similar. Index 1 is based on the equation estimated as part of the 1976 study (for the 1974-75 school year) while index 2 is based on the equation presented in Table 4 (which is part of the current study) using 1975-76 data. Both of these cost indices are based on equations which explain over 85 percent of the variance in teachers' salaries. The 1974-75 index varies from .915 to 1.168 while the 1975-76 index varies from .906 to 1.138. The correlation between the two indices (which is inferred from the correlation between the component indices presented in Table 9) is .9446. Based on these results, there appears to be a reasonable level of stability in the index over time. Although further work needs to be done, these results do indicate that it might not be necessary to recalculate the cost index on a yearly basis. How stable this index will be over a three or four year period is still a matter for investigation.

Comparing the simple with the alternative specification, one finds that the alternative specification of personnel costs tends to exhibit somewhat

TABLE 9

PEARSON CORRELATION COEFFICIENTS
BETWEEN TEACHERS' SALARY, ADMINISTRATORS'
SALARY AND TRANSPORTATION COST INDICES

INDEX	(1)	(2)	(3)	(4)	(5)
(1) Simple Tchrs' Salary Index, 1974-75 (TABLE C-1)	1.0000	.9446	.8622	.8787	-.4256
(2) Simple Tchrs' Sal. Index, 1975-76 (TABLE 4)		1.0000	.8933	.9206	-.4349
(3) Alt. Tchrs' Sal. Index, 1975-76 (TABLE 5)			1.0000	.9872	-.5567
(4) Admin. Sal. Index, 1975-76 (TABLE 6)				1.0000	-.5559
(5) Trans. Cost Index, 1975-76 (TABLE 7)					1.0000

wider variation than the simple specification. This is no surprise since the alternative specification, by using continuous variables rather than dummy variables, is more sensitive to certain aspects of cost variations than the simple specification.

Administrators' costs tend to exhibit much wider variations than teachers' cost and hence tend to widen the variation in the overall cost index somewhat. Inclusion of the transportation cost index in the overall cost index tends to reduce the variation since transportation costs tend to be relatively lower in the metropolitan areas while personnel costs in metropolitan regions tend to be relatively high. These opposing trends between personnel and transportation costs is further revealed in Table 9 by the negative correlations between the transportation and salary indices for teachers and administrators.

Implementation of the Cost of Education Index

It should be noted that a number of alternative cost indices could be calculated from the estimated coefficients presented in Tables 4 through 7 by using different combinations of the explanatory variables. Moreover, the State may decide to treat transportation costs separately from other cost components and to use different combinations of variables than used to determine the cost indices presented in Table 8. No matter how the indices are calculated, they represent deviation of educational costs from some average or standard level of expenditure or educational service. The application of the index, whether it be to state aid to local districts or to total expenditures, is intended to adjust the budgets of local school districts to account for differences in the cost of educational services.

As with the results of the 1976 study, the results presented in this report suggest that the overall level of state aid will have to increase to accomodate the higher costs of services to the vast majority of pupils in the state. That

is, the districts exhibiting the higher costs are the relatively large districts in the state. Hence, total state aid will tend to rise if the cost indices are applied to distributions of educational funds by the state. One way to resolve this difficulty would involve scaling down the index so that relative positions are preserved but the absolute, overall distribution of state aid requires no increase. However, this may be politically difficult since many districts would lose in such an arrangement. Alternatively, the index could be scaled up so no district loses, but this will certainly involve large increases in state aid.

FOOTNOTES

[1]Once again we should note that this is a hypothetical example and that the relationship between district size and teachers' salaries is likely to be more complicated. For example, it is likely that the effect on salaries of increasing district size by 1,000 pupils will differ depending on the initial size of the districts. There is likely to be more of a difference in salary caused if size were to increase from 500 to 1,500 pupils than if size were to increase from 20,000 to 21,000 pupils. However, in the simple example described in equation 1 in the text, such subtleties in the relationship are ignored.

[2]In actual fact about 63.53 percent of school district budgets in Missouri are used for teachers' salaries. In this definition of teachers, we have included classroom teachers, substitute teachers, librarians and other special teachers used in Title I and Title III instructional programs. In addition to salaries, we have included district contribution to retirement plans and social security for teachers.

[3]Unfortunately, a number of problems encountered in the development of the survey instruments and in coordinating the effort to send them out to the sample personnel prevented the results from being as useful or detailed as they could have been. The size of the original questionnaire was reduced considerably forcing us to match data from a variety of sources to survey responses. We encountered considerable difficulty with nonoverlapping responses between the district and personnel questionnaires which made much of the information derived from the district surveys of little value. Moreover, because of some delays in sending out the personnel survey, we had to send out the survey in the fall of 1977 which is two years later than the data to which much of the personnel information was being matched. In addition, since the original sample of personnel was derived from data tapes from the 1975-76 school year, we expect that we lost some portion of our sample through normal attrition rates over the two year period.

[4]These eight districts apparently did not provide transportation services.

[5]The results of the comparisons are discussed below.

[6]See Tolley, 1974 and Kenny et al.

[7]See Appendix B for a discussion of the regional boundaries used for defining districts per square mile.

[8]See, for example, Kenny et al.

[9]An alternative way the district can affect this variable is simply by assigning larger numbers of pupils to the remedial program as a way of increasing compensation for cost differentials if they were to find out that it was used to calculate the teacher-cost index. However, if this were to occur, then the variable would tend to lose its significance in the statistical analysis of variations in teachers' salaries as it would no longer truly reflect the kinds of pupils enrolled by the district.

REFERENCES

Antos, Joseph R. and Sherwin Rosen. "Discrimination in the Market for Public School Teachers." Journal of Econometrics, No. 3 (1975).

Brazer, Harvey E. "Adjusting for Differences Among School Districts in the Costs of Educational Inputs: A Feasibility Report." In Selected Papers in School Finance 1974. Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1975.

Chambers, Jay G. "An Analysis of Resource Allocation in Public School Districts." Public Finance Quarterly (Forthcoming).

Chambers, Jay G. "The Impact of Bargaining on the Earnings of Teachers: A Report on California and Missouri." Paper prepared for presentation at the U.K.-U.S. Conference on Teacher Markets held at the University of Chicago, December 1976.

Chambers, Jay G. "The Impact of Collective Bargaining for Teachers on Resource Allocation in Public School Districts." Journal of Urban Economics (July 1977).

Chambers, Jay G. "School District Behavior, Markets for Educational Resources and the Implications for Public Policy: A Survey." March 1977. Paper written for a volume entitled Economic Contributions to Education currently being prepared by the National Academy of Education.

Chambers, Jay G., Allan Odden and Phillip Vincent. Cost-of-Education Indices Among School Districts. Denver, Colorado: Education Commission of the States, December 1976.

Fox, James N. "Cost-of-Living Adjustments: Right Intent, Wrong Technique." Phi Delta Kappan 56, No. 8 (April 1975): 548-50.

Griliches, Zvi. Price Indexes and Quality Change: Studies in New Methods of Measurement. Edited by Don K. Price. Cambridge, Massachusetts: Harvard University Press, 1971.

Grubb, Norton W. "Identifying Teacher Supply Functions and Constructing Cost Indices: Methodological Explorations with California Unified School Districts." Preliminary draft to the U.S. Office of Education under Contract OEC-300-75-0320.

Kenny, L. and D. Denslow and I. Goffman. "Determination of Teacher Cost Differentials Among School Districts in the State of Florida." In Selected Papers in School Finance, 1975. Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1976.

Levin, Henry M. "Recruiting Teachers for Large City Schools." Unpublished monograph. Washington, D.C.: The Brookings Institution, June 1968.

Odden, Allan and Phillip E. Vincent. Analysis of the School Finance and Tax Structure of Missouri: Background Research for the Educational Finance Committee of the Governor's Conference on Education. Denver, Colorado: The Education Commission of the States, 1976.

Rosen, Sherwin. "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition." Journal of Political Economy 82, No. 1 (January/February 1974): 34-55.

Simmons, James C. "Comments on 'Cost-of-Living Adjustments in School Finance.'" Phi Delta Kappan 57, No. 2 (October 1975): 120.

Toder, Eric Jay. The Distribution of Public School Teachers by Race and Income Class in an Urban Metropolitan Area. Medford, Massachusetts: Tufts University, March 1971. Report to U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research.

Tolley, George S. "The Welfare Economics of City Bigness." Journal of Urban Economics 1 (1974): 324-45.

Turnbull, D. and Gareth Williams. "Personal Characteristics and the Earnings of Teachers: An Earnings Function Approach." Paper presented at the U.K.-U.S. Conference on Teacher Markets held at the University of Chicago, December 1976.

Wasserman, William. Education Price and Quantity Indexes. Syracuse, New York: Syracuse University Press, 1963.

APPENDIX A

RESPONSE RATES TO THE PERSONNEL AND DISTRICT SURVEYS

As part of this study, two survey questionnaires were sent out: one to a large random sample of school personnel and one to local school districts. Unfortunately, for some of the reasons discussed in footnote 2 in the text, the survey data were of somewhat less value than orginally anticipated. Nevertheless, much of the information taken from the personnel survey was incorporated into various stages of the empirical analysis.

Approximately 1,400 of the 4,989 surveys sent to school personnel (teachers and administrators) and approximately 226 out of the 559 school districts in the state were returned. The overall response rate among personnel was about 28 percent with a somewhat larger response rate among administrators than teachers. Among districts the response rate was just over 40 percent. Budget limitations did not permit a follow-up on the personnel questionnaire.

Differences between the respondents and the nonrespondents were examined and found to be negligible with regard to such variables as salary, total years of experience, years of education, sex and whether they were located in central city districts or not. Moreover, no systematic variation in response rates appeared to exist between teachers employed in metropolitan versus nonmetropolitan districts.

APPENDIX B

DEFINITION OF REGIONAL LABOR MARKETS IN MISSOURI

One of the factors identified as affecting the supply, and hence the salaries paid school personnel, is the region in which the district is located. Regions characterized by relatively high wages in professional or white collar occupations, by a relatively high cost of living, or by other unique features that make it relatively less attractive will tend to exhibit higher salaries for school personnel. Because of this impact of these variations in regional characteristics, it is necessary to identify collections of cities and counties that tend to reveal similarities with respect to these particular characteristics.

In the effort to identify the regions within the state of Missouri, we examined maps showing population density, the various centers of economic and business activity, the kinds of industry, differences in geography, and the network of major highways and roads that connect the cities and towns. It is always rather difficult to draw precise boundaries to a region since it is hard to say that an individual or family who lives on or adjacent to the boundaries focuses attention on the center of business activity within the region in which they live rather than the adjacent region. For example, it is hard to say whether an individual living in the central portion of Johnson County in Missouri will tend to focus on Kansas City or Sedalia as the relevant center of business and employment. It is because of this difficulty that population density and the network of highways were used to aid in the determination of regional boundaries.

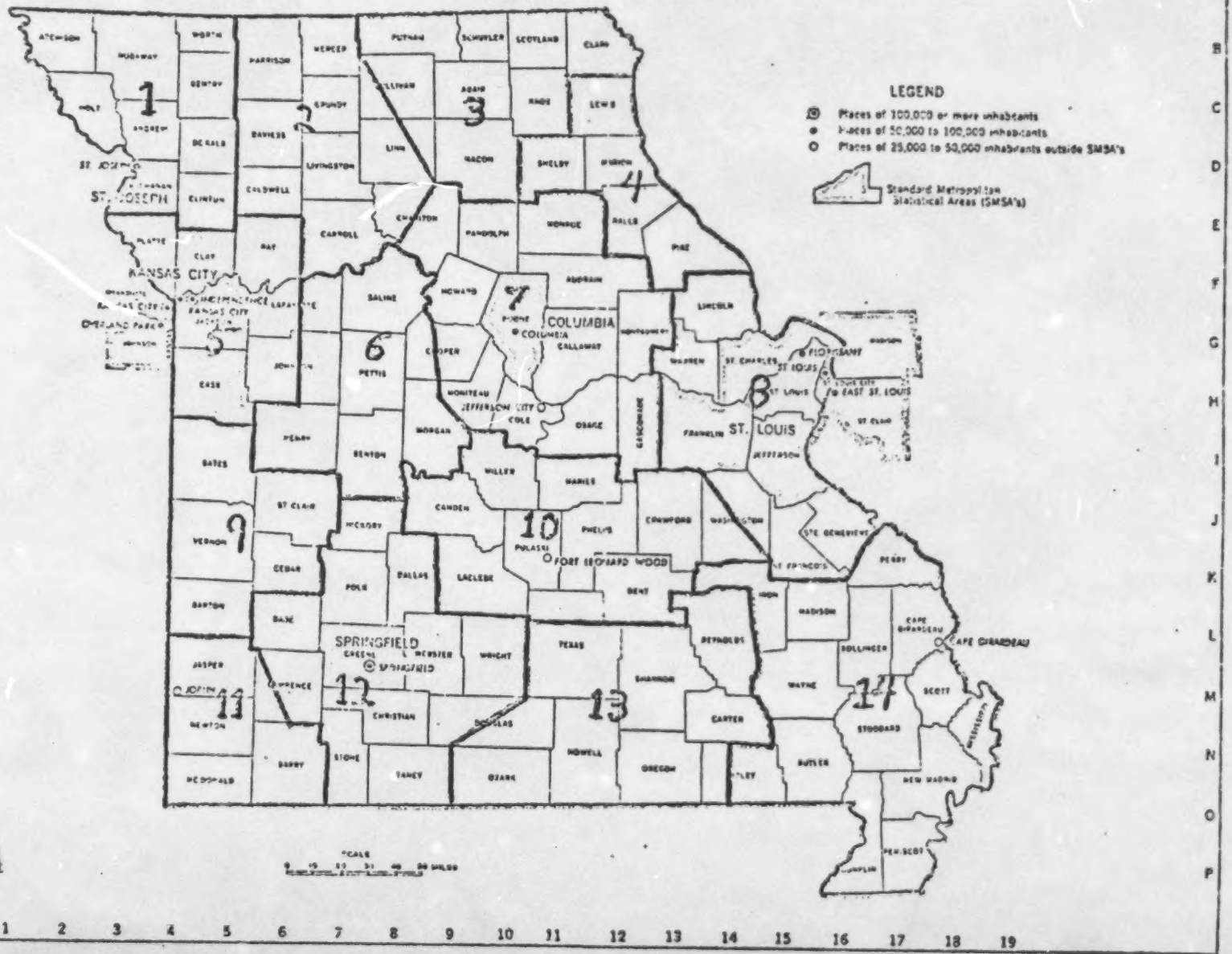
Having studied the characteristics of the various regions in the state and having made some preliminary attempts at drawing regional boundaries, we then consulted Mr. John Alberty, the Coordinator of School Finance in the Missouri State Department of Elementary and Secondary Education. We must gratefully acknowledge his assistance in evaluation of our regional boundaries. His know-

ledge of the mobility patterns of the population was particularly helpful in the determination of the location of regional boundaries that divided some of the various counties in the state between regions.

Figure 1 shows the Map of Missouri divided into the various regions (and the counties of which they are composed) that are used to determine the extent of any regional differences in the costs of education.

BEST COPY AVAILABLE

REGIONS OF MISSOURI



Counties, Standard Metropolitan Statistical Areas, and Selected Places

APPENDIX C

ESTIMATES OF THE TEACHERS' SALARY EQUATION BASED ON THE 1976 STUDY (USING 1974-75 DATA)

TABLE C-1

DETERMINANTS OF TEACHERS' SALARIES
IN MISSOURI SCHOOL DISTRICTS, 1974-75:
SIMPLE SPECIFICATION
(Dependent Variable = LOG_e(TCHRS SAL))[a]

Explanatory Variables (1)	Estimated Coefficient (2)	t-Ratio (3)	% Effect on Tchrs' Salaries (4)
EDUC NO BA	0.04907	3.63	5.03
EDUC BA	—	—	—
EDUC 15-29 GRAD HRS	0.03229	4.45	3.28
EDUC 30-44GRAD HRS	0.03711	4.49	3.78
EDUC 45-59 GRAD HRS	0.05460	5.52	5.61
EDUC 60 or more GRAD HRS	0.10791	9.93	11.39
EDUC MA	0.10150	12.20	10.68
EDUC ED SPEC CERT	0.11702	5.32	12.41
EDUC DOC	0.12268	3.92	13.05
EXP TOTAL YRS	0.01246	27.63	1.25
EXP TOTAL YRS IF 20 YRS	-0.00693	21.90	-0.69
EXP PRESENT DIST	0.01263	15.02	1.27
EXP PRESENT DIST IF 10-19 YRS	-0.00304	3.28	-0.30
EXP PRESENT DIST IF 20 YRS	-0.00664	9.62	-0.66
EXP 40 YRS--YES	-0.13986	8.97	-13.05
EXP 40 YRS--NO	—	—	—
LOG_e(EXPEND/ADA)	0.20697	12.72	0.21
MEDIAN FAMILY INCOME	0.0000057	5.04	0.00057
HIGH SCH TCH YES	0.01400	3.65	1.41
HIGH SCH TCH NO	—	—	—
PERCENT NEW TCHRS ELEM TCH	-0.00123	5.55	-0.12
PERCENT NEW TCHRS UPPER GRADE TCH	-0.00053	2.78	-0.05
TEACHER-PUPIL RATIO	-1.82890	5.42	-0.57
SEX MALE	0.04096	12.25	4.18
SEX FEMALE	—	—	—
REGION 1	0.0	0.0	0.0
REGION 2	0.0	0.0	0.0
REGION 3	-0.07136	6.63	-6.88
REGION 4	-0.04906	4.04	-4.79
REGION 5	0.01801	2.24	1.82
REGION 6	-0.02018	2.26	-2.00
REGION 7	-0.02251	3.34	-2.23
REGION 8	0.06356	8.04	6.56
REGION 9	0.0	0.0	0.0
REGION 10	0.0	0.0	0.0
REGION 11	-0.02784	3.42	-2.75
REGION 12	-0.05701	7.25	-5.54
REGION 13	-0.05249	4.03	-5.11
REGION 14	—	—	—
DIST SIZE 200 ADA	—	—	—
DIST SIZE 200-499 ADA	0.03425	2.42	3.48
DIST SIZE 500-999 ADA	0.07411	5.16	7.69
DIST SIZE 1000-4499 ADA	0.12895	8.73	13.76
DIST SIZE 4500-7499 ADA	0.16214	10.11	17.60
DIST SIZE 7500-19999 ADA	0.17154	10.81	18.71
DIST SIZE 20000-30000 ADA	0.14689	8.27	15.82
COLUMBIA	0.0	0.0	0.0
SPRINGFIELD	0.13327	9.73	14.26
KANSAS CITY	0.15652	7.37	16.94
ST. JOSEPH	0.0	0.0	0.0
ST. LOUIS	0.21569	10.44	24.07
SUBURB FAST GRWTH	0.03358	4.42	3.42
SUBURB SLOW GRWTH	0.04818	6.01	4.94
RURAL	—	—	—
PERCENT MINORITY PUPILS	0.00029	2.05	0.029
PERCENT ELEM PUPILS	0.00107	4.16	0.11
ELEM DIST YES	-0.09428	4.60	-9.00
ELEM DIST NNO	—	—	—
CONSTANT	7.28164		

R^2 = .85 F(44,4157) = 344.02

Sample Size = 4,202

[a]The teachers' salary index is based upon variables REGION 1 through PERCENT MINORITY PUPILS.

BEST COPY AVAILABLE

APPENDIX D

COMPUTATION OF A SALARY INDEX FROM A LOG_e-LINEAR EQUATION

Let the market price schedule (i.e., the salary equation) for teachers be given by

$$LOG_e SAL = \alpha + \beta Q + \gamma Z \qquad \text{(D-1)}$$

where Q and Z represent vectors of controllable and uncontrollable variables, respectively. The index of teacher costs will then be based on the variables Q held constant at, for example, their average values. The difference between can then be determined from the expression:

$$LOG_e SAL_i - LOG_e \overline{SAL} = (\alpha + \beta \bar{Q} + \gamma Z_i) - (\alpha + \beta \bar{Q} + \gamma \bar{Z}) \qquad \text{(D-2)}$$

where the bars indicate mean values across districts in the state. Rewriting equation (D-2), we have

$$LOG_e(SAL_i/\overline{SAL}) = \gamma (Z_i - \bar{Z}). \qquad \text{(D-3)}$$

The teachers' salary index, $SAL_i/\overline{SAL}$ is then given by

$$SAL_i/\overline{SAL} = EXP\ (\gamma (Z_i - \bar{Z})) = SALINDEX_i.$$

APPENDIX E

COST INDICES FOR MISSOURI SCHOOL DISTRICTS, 1975-76

(See Table 8 for Definitions of Each Cost Index)

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
NOVINGER R I	.948	.969	.964	.967
KIRKSVILLE R III	1.008	1.045	1.061	1.058
BRASHEAR R II	.953	.965	.954	.956
NORTH ANDREW R VI	.983	.992	.988	.996
AVENUE CITY R IX	.942	.921	.900	.911
FILLMORE C 1	.942	.928	.908	.914
SAVANNAH R III	1.046	1.060	1.078	1.077
TARKIO R I	1.008	1.027	1.032	1.035
ROCK PORT R II	1.008	1.033	1.040	1.034
FAIRFAX R III	.983	.978	.972	.969
WESTBORO R IV	.942	.924	.903	.931
MI-RAY R III	.930	.933	.914	.945
COMMUNITY R VI	.994	1.008	1.011	1.025
VANDALIA R I	1.032	1.034	1.044	1.054
MEXICO 59	1.029	1.076	1.098	1.080
WHEATON R III	.979	.979	.975	.967
SOUTHWEST R V	1.004	1.015	1.019	1.026
EXETER R VI	.979	.978	.969	.962
CASSVILLE R IV	1.043	1.036	1.047	1.047
PURDY R II	1.004	1.002	1.003	1.007
GOLDEN C 9	.939	.841	.800	.793
JENKINS 35	.939	.907	.882	.892
SHELL KNOB 78	.939	.959	.944	.937
MONETT R I	1.043	1.046	1.060	1.044
LIBERAL R II	.982	.984	.982	.994
GOLDEN CITY R III	.962	.983	.976	.979
LAMAR R I	1.046	1.023	1.032	1.026
MIAMI R I	.982	.992	.989	.992
BALLARD R II	.942	.939	.923	.940
ADRIAN R III	1.007	1.011	1.014	1.004
RICH HILL R IV	1.007	.999	.999	.999
HUME R VIII	.942	.947	.933	.929
HUDSON R IX	.942	.917	.894	.915
BUTLER R V	1.046	1.025	1.035	1.024
LINCOLN R II	.964	1.001	1.000	1.006
HARRISONVILLE R IX	.989	1.030	1.039	1.041
BENTON CO R X	.925	.896	.867	.889
COLE CAMP R I	.989	1.013	1.016	1.020
MEADOW HEIGHTS R II	1.029	.998	.998	1.011
LEOPOLD R III	.961	.934	.917	.920
ZALMA R V	1.003	.978	.969	.981
WOODLAND R IV	1.029	1.018	1.023	1.034
SOUTHERN R I	1.015	1.006	1.011	1.014
NEW HAVEN R II	.990	.981	.978	.997
HALLSVILLE R IV	1.015	1.011	1.018	1.013
STURGEON R V	.990	.961	.954	.939
CENTRALIA R VI	1.054	1.028	1.041	1.019
HARRISBURG R VIII	.990	.990	.990	1.001
COLUMBIA	1.051	1.077	1.105	1.088
HIGHWAY HEIGHTS C 7	.990	.975	.969	.999
E BUCHANAN C 1	1.038	1.004	1.011	1.006
MID-BUCHANAN R-V	1.038	.994	.999	1.010
DEKALB R IV	1.038	.983	.983	.993
ST JOSEPH	1.068	1.069	1.096	1.076
NEELYVILLE R IV	1.029	1.023	1.031	1.043
POPLAR BLUFF R I	1.099	1.079	1.105	1.090
TWIN RIVERS R X	1.069	1.044	1.059	1.066

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
NOVINGER R I	.918	.951	.947	1.049
KIRKSVILLE R III	1.013	1.071	1.188	.943
GRASHEAN R II	.918	.945	.874	1.034
NORTH ANDREW R VI	.972	.988	.950	1.163
AVENUE CITY R IX	.909	.876	.756	1.218
FILLMORE C 1	.909	.886	.776	1.099
SAVANNAH R III	1.073	1.094	1.220	.980
TARKIO R I	1.012	1.042	1.057	1.067
ROCK PORT R II	1.012	1.053	1.073	.893
FAIRFAX R III	.972	.965	.931	.929
MESTADRO R IV	.909	.881	.751	1.535
MI-WAY R III	.890	.895	.769	1.617
COMMUNITY R VI	.990	1.013	1.032	1.266
VANDALIA R I	1.050	1.053	1.127	1.177
MEXICO 59	1.045	1.119	1.264	.633
MEATON R III	.968	.967	.950	.846
SOUTHWEST R V	1.007	1.024	1.044	1.123
EXETER R VI	.968	.965	.898	.865
CASSVILLE R IV	1.068	1.056	1.127	1.000
PURDY R II	1.007	1.004	1.008	1.075
GOLDEN C 9	.904	.850	.522	.860
JENKINS 35	.904	.853	.710	1.194
SHELL KNOB 78	.904	.936	.827	.867
MONETT R I	1.068	1.073	1.162	.676
LIBERAL R II	.972	.975	.974	1.238
GOLDEN CITY R III	.972	.973	.927	1.058
LAMAR R I	1.072	1.036	1.106	.872
MIAMI R I	.972	.987	.966	1.054
BALLARD R II	.908	.904	.812	1.324
ADRIAN R III	1.011	1.017	1.038	.809
RICH HILL R IV	1.011	.998	1.001	.994
HUME R VIII	.908	.916	.837	.935
HUDSON R [illegible]	.908	.869	.739	1.397
BUTLER R V	1.072	1.039	1.119	.777
LINCOLN R II	.944	1.002	.989	1.104
HARRAH R IX	.982	1.048	1.095	1.059
HENTON CO R X	.882	.836	.666	1.420
CULE CAMP R I	.982	1.020	1.032	1.043
MEADOW HEIGHTS R II	1.045	.997	.997	1.245
LEOPOLD R III	.939	.896	.800	1.064
ZALMA R V	1.005	.965	.901	1.224
WOODLAND R IV	1.045	1.028	1.066	1.206
SOUTHERN R I	1.024	1.009	1.067	1.045
NEW HAVEN R II	.984	.970	.962	1.371
HALLSVILLE R IV	1.024	1.017	1.069	.893
STURGEON R V	.984	.938	.924	.709
CENTRALIA R VI	1.086	1.044	1.153	.573
HARRISBURG R VIII	.984	.985	.998	1.209
COLUMBIA	1.030	1.121	1.325	.670
MIDWAY HEIGHTS C 7	.964	.960	.936	1.567
E BUCHANAN C 1	1.059	1.007	1.081	.904
MID-BUCHANAN R-V	1.059	.990	1.067	1.203
DEKALB R IV	1.059	.972	1.000	1.203
ST JOSEPH	1.107	1.109	1.315	.614
NEELYVILLE R IV	1.045	1.037	1.094	1.216
POPLAR BLUFF R I	1.156	1.125	1.296	.725
TWIN RIVERS R I	1.108	1.069	1.175	1.143

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
BRECKENRIDGE R I	.926	.956	.942	.919
HAMILTON R II	.990	1.023	1.030	1.037
NEA YORK R IV	.926	.895	.866	.887
COASILL R VI	.926	.898	.870	.875
POLO R VII	.966	1.003	1.001	.995
MIRAMILE C 1	.926	.919	.892	.905
BRAYMER C 8	.966	1.003	1.003	.991
KINGSTON 42	.926	.896	.867	.865
NORTH CALLAWAY R I	.994	1.023	1.031	1.036
NEA BLOOMFIELD R III	.969	.992	.991	.992
FULTON 58	1.028	1.054	1.071	1.060
SO CALLAWAY R II	.994	.991	.992	1.002
CEDAR CITY 113	.930	.898	.871	.852
STOUTLAND R II	1.010	.976	.971	.984
CAMDENTON R III	1.049	1.019	1.029	1.033
CLIMAX SPRINGS R IV	.985	.937	.920	.922
MACKS CREEK R V	.985	.956	.942	.947
JACKSON R II	1.069	1.046	1.065	1.073
DELTA R V	1.029	.983	.982	.995
OAK RIDGE R VI	1.003	.962	.956	.958
CAPE GIRARDEAU 63	1.066	1.062	1.084	1.071
WELL HOLCOMB R IV	1.003	.955	.947	.973
HALE R I	.926	.960	.948	.941
TINA AVALON R II	.966	.985	.977	.996
BOGARD R IV	.926	.953	.940	.927
BOSWORTH R V	.926	.959	.947	.946
CARROLLTON R VII	1.028	1.051	1.066	1.048
NORBORNE R VIII	.966	1.001	.998	.991
HAKENDA C 2	.926	.912	.887	.891
EAST CARTER R II	.997	1.005	1.004	1.011
VAN BUREN R I	.973	.987	.982	.977
ARCHIE R V	1.009	1.021	1.028	1.027
STRASBURG C 3	.974	.957	.945	.967
RAYMORE-PECULIAR R II	1.075	1.079	1.105	1.098
SHERWOOD R VIII	1.035	1.056	1.072	1.075
EAST LYNNE 40	.974	.964	.953	.958
PLEASANT HILL R III	1.075	1.058	1.077	1.079
HARRISONVILLE R IX	1.075	1.080	1.105	1.096
DREXEL R IV	1.009	1.010	1.010	.992
MIDWAY R I	1.035	1.032	1.041	1.050
BELTON 124	1.075	1.095	1.124	1.128
STOCKTON R I	1.007	1.008	1.012	1.019
EL DORADO SPGS R II	1.046	1.021	1.031	1.031
NORTHWESTERN R I	.966	1.000	.997	1.000
BRUNSWICK R II	.969	.992	.990	.981
KEYTESVILLE R III	.969	1.004	1.000	1.015
SALISBURY R IV	.994	1.018	1.025	1.018
CHADWICK R I	.960	.958	.948	.957
NIXA R II	.984	1.029	1.037	1.027
SPARTA R III	.960	.998	.996	.998
BILLINGS R IV	.960	1.001	1.000	.985
CLEVER R V	.960	.983	.980	.983
OZARK R VI	1.021	1.045	1.060	1.057
SPOKANE R VII	.960	.988	.983	.990
AYACONDA C 1	.910	.916	.893	.902
REVERE C 3	.910	.935	.918	.923
LURAY 33	.910	.924	.904	.901

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
BRECKENRIDGE R I	.854	.931	.829	.560
HAMILTON R II	.984	1.037	1.076	1.143
NEW YORK R IV	.884	.835	.665	1.398
CUNGILL R VI	.884	.840	.674	1.091
POLO R VII	.946	1.005	.979	.881
MIRAMILE C 1	.884	.672	.687	1.252
BRAYMER C 4	.946	1.005	.994	.781
KINGSTON 42	.884	.836	.667	.951
NORTH CALLAWAY R I	.990	1.036	1.094	1.097
NEW BLOOMFIELD R III	.952	.988	.988	1.023
FULTON 58	1.044	1.065	1.203	.766
SO CALLAWAY R II	.990	.986	1.009	1.192
CEDAR CITY 113	.890	.839	.692	.625
STOUTLAND R II	1.016	.903	.932	1.262
CAMDENTON R III	1.077	1.029	1.121	1.088
CLIMAX SPRINGS R IV	.976	.901	.801	1.030
MACKS CREEK R V	.976	.928	.856	1.107
JACKSON R II	1.108	1.073	1.216	1.161
DELTA R V	1.045	.974	.984	1.251
OAK RIDGE R VI	1.005	.940	.927	1.047
CAPE GIRARDEAU 63	1.103	1.097	1.267	.735
WELL MULCOMB R IV	1.005	.930	.904	1.511
HALE R I	.884	.936	.664	.867
TINA AVALON R II	.946	.976	.910	1.367
BOGARD R IV	.884	.927	.843	.753
MOSWORTH R V	.884	.935	.860	.988
CARROLLTON R VII	1.044	1.081	1.166	.655
NORBORNE R VIII	.946	1.002	.957	.874
HAKENDA C 2	.884	.861	.709	1.078
EAST CARTER R II	.996	1.007	.995	1.126
VAN BUREN R I	.957	.979	.939	.910
ARCHIE R V	1.014	1.032	1.067	.986
STRASBURG C 3	.959	.932	.857	1.440
RAYMORE-PECULIAR R II	1.118	1.125	1.299	.865
SHERWOOD R VIII	1.055	1.089	1.185	1.065
EAST LYNNE 40	.959	.943	.881	1.088
PLEASANT HILL R III	1.118	1.092	1.219	1.040
HARRISONVILLE R IX	1.118	1.126	1.300	.808
DREXEL R IV	1.014	1.015	1.004	.643
KINSEY R I	1.055	1.050	1.100	1.189
BELTON 124	1.118	1.149	1.344	1.078
STOCKTON R I	1.011	1.013	1.050	1.124
EL DORADO SPGS R II	1.072	1.032	1.119	1.007
NORTHEASTERN R I	.946	1.001	.956	1.068
BRUNSWICK R II	.952	.987	.961	.821
KEYESVILLE R III	.952	1.007	.949	1.300
SALISBURY R IV	.990	1.029	1.077	.873
CHADWICK R I	.936	.934	.878	1.177
MIXA R II	.974	1.045	1.100	.807
SPARTA R III	.936	.997	.980	1.030
BILLINGS R IV	.936	1.001	.992	.702
CLEVER R V	.936	.973	.965	1.055
OZARK R VI	1.033	1.071	1.171	.947
SPOKANE R VII	.936	.981	.941	1.134
ANACONDA C 1	.858	.867	.739	1.170
REVERE C 3	.658	.698	.602	1.089
LURAY 33	.858	.881	.767	.933

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
KANSAS R I	1.008	1.033	1.045	1.042
KEARNEY R I	1.075	1.075	1.099	1.096
SMITHVILLE R II	1.035	1.055	1.072	1.075
EXCELSIOR SPRINGS 40	1.075	1.107	1.140	1.130
LIBERTY 53	1.074	1.112	1.145	1.136
MISSOURI CITY 56	.974	.956	.942	.937
N KANSAS CITY	1.108	1.131	1.171	1.158
CAMERON R I	1.046	1.040	1.054	1.047
LATHROP R II	1.008	1.029	1.037	1.025
PLATTSBURG R III	1.008	1.032	1.040	1.025
RUSSELLVILLE R I	.969	.968	.963	.959
COLE CO R-II	.994	.980	.978	.982
CENTERTOWN R III	.969	.948	.940	.968
EUGENE R V	.994	.980	.978	.993
JEFFERSON CITY	1.060	1.047	1.068	1.053
BLACKWATER R II	.964	.961	.951	.940
BUNCETON R IV	.930	.956	.942	.940
PRAIRIE HOME R V	.930	.929	.911	.923
UTTENVILLE R VI	.964	.972	.986	.968
PILOT GROVE C 4	.964	.990	.985	.988
BOONVILLE R I	1.028	1.047	1.061	1.053
BOURBON R I	1.010	1.008	1.012	1.017
CRAWFORD CO R II	1.049	1.019	1.026	1.026
STEELVILLE R III	1.010	1.009	1.014	1.024
LOCKWOOD R I	.969	1.009	1.010	1.007
DADEVILLE R II	.921	.950	.932	.941
EVERTON R III	.921	.947	.932	.945
GREENFIELD R IV	.960	1.012	1.012	1.016
DALLAS CO R I	1.021	1.050	1.065	1.072
COFFEY R I	.926	.904	.877	.877
PATTONSBURG R II	.966	.973	.965	.963
HINSTON R VI	.926	.960	.949	.944
JAMESON R III	.926	.924	.902	.898
GALLATIN R V	.990	1.016	1.020	1.019
TRI COUNTY R VII	.966	.968	.958	.945
OSBORN R O	.982	.960	.947	.944
MAYSVILLE R I	1.006	1.029	1.035	1.040
UNION STAR R II	.983	.972	.965	.949
STEWARTSVILLE C 2	.983	.982	.976	.960
FAIRPORT R VI	.942	.879	.846	.868
SALEM R 80	1.049	1.018	1.023	1.020
OAK HILL R I	.985	.936	.923	.957
GREEN FOREST R II	.985	.951	.941	.966
DENT PHELPS R III	.985	.966	.958	.982
NORTH WOOD R IV	.985	.948	.936	.967
SKYLINE R II	.933	.926	.904	.911
PLAINVIEW R VIII	.921	.898	.870	.902
AVA R I	1.021	1.046	1.057	1.058
WALDEN R I	1.064	1.068	1.088	1.080
CAMPBELL R II	1.029	1.035	1.045	1.045
HULCUMB R III	1.029	1.015	1.020	1.025
CLARKTON C 4	1.003	1.007	1.009	.987
SENATH C 8	1.066	1.052	1.066	1.066
SOUTHLAND CONS C 9	1.003	1.019	1.022	1.023
KENNETT 39	1.069	1.066	1.069	1.068
ANACONDA A7	.965	.961	.951	.946
FRANKLIN CO R-II	1.028	.970	.962	.982

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
NAMOKA R I	1.013	1.053	1.152	.939
KEARNEY R I	1.118	1.118	1.277	.984
SMITHVILLE R II	1.055	1.087	1.196	1.050
EXCELSIOR SPRINGS 40	1.118	1.169	1.383	.800
LIBERTY 53	1.116	1.176	1.395	.863
MISSOURI CITY 56	.959	.930	.844	.893
N KANSAS CITY	1.170	1.206	1.464	.747
CAMERON R I	1.072	1.063	1.166	.856
LATHROP R II	1.012	1.046	1.095	.770
PLATTSBURG R III	1.012	1.050	1.094	.718
RUSSELLVILLE R I	.952	.949	.949	.912
COLE CO R-II	.990	.968	.978	1.080
CENTERTOWN R III	.952	.919	.899	1.536
EUGENE R V	.990	.969	.969	1.291
JEFFERSON CITY	1.095	1.073	1.252	.699
BLACKWATER R II	.944	.939	.883	.781
HUNTSTON R IV	.890	.930	.838	.972
PRAIRIE HOME R V	.890	.889	.787	1.226
OTTERVILLE R VI	.944	.957	.922	1.039
PILOT GROVE C 4	.943	.984	.948	1.055
BOONVILLE R I	1.044	1.075	1.157	.842
BOURBON R I	1.016	1.012	1.052	1.094
CRAWFORD CO R II	1.077	1.030	1.085	.987
STEELVILLE R III	1.016	1.014	1.057	1.197
LOCKWOOD R I	.936	1.015	1.003	.939
DADEVILLE R II	.875	.921	.765	1.186
EVERTON R III	.875	.917	.829	1.245
GREENFIELD R IV	.936	1.020	.999	1.065
DALLAS CO R I	1.033	1.079	1.168	1.138
COFFEY R I	.884	.849	.687	.988
PATTONSBURG R II	.946	.957	.912	.944
WINSTON R VI	.884	.937	.867	.911
JAMESON R III	.884	.880	.749	.914
GALLATIN R V	.984	1.026	1.040	.994
TRI COUNTY R VII	.946	.949	.893	.745
OSBORN R O	.909	.937	.844	.935
MAYSVILLE R I	1.012	1.045	1.078	1.888
UNION STAR R II	.972	.957	.917	.885
STEWARTSVILLE C 2	.972	.972	.930	.606
FAIRPORT R VI	.909	.809	.618	1.426
SALEM R 80	1.077	1.028	1.056	.944
OAK HILL R I	.976	.902	.829	1.655
GREEN FOREST R II	.976	.924	.876	1.487
DENT PHELPS R III	.976	.947	.904	1.465
NORTH WOOD R IV	.976	.918	.863	1.599
SKYLINE R II	.895	.884	.738	1.140
PLAINVIEW R VIII	.875	.839	.682	1.612
AVA R I	1.033	1.072	1.127	1.025
SALEM R I	1.101	1.107	1.231	.854
CAMPBELL R II	1.045	1.055	1.123	1.002
HOLCOMB R III	1.045	1.023	1.056	1.048
CLARKTON C 4	1.005	1.011	1.025	.577
SENATH C 8	1.104	1.061	1.174	.985
SOUTHLAND CONS C 9	1.005	1.030	1.038	1.017
KENNETT 39	1.106	1.105	1.267	.569
ANACONDA 67	.976	.959	.882	.905
FRANKLIN CO R-II	1.045	.952	.911	1.394

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
MERAMEC VALLEY R III	1.097	1.086	1.114	1.108
UNION R XI	1.097	1.077	1.103	1.096
LONDELL R XIV	1.028	1.018	1.022	1.052
SPRING BLUFF R XV	1.028	.977	.972	1.002
STRAIN-JAPAN R-XVI	.985	.949	.936	.941
ST CLAIR R XIII	1.097	1.068	1.089	1.092
SULLIVAN C 2	1.097	1.071	1.093	1.086
NEW HAVEN	1.028	1.006	1.008	.979
WASHINGTON	1.106	1.086	1.113	1.107
OWENSVILLE R II	1.032	1.036	1.046	1.055
BLAND R III	.969	.968	.956	.951
HERMANN R I	1.032	1.024	1.032	1.039
KING CITY R I	.983	.995	.991	.980
STANDERRY R II	.983	.999	.998	.993
ALBANY R III	1.008	1.013	1.017	1.010
WILLARD R II	1.043	1.056	1.077	1.079
REPUBLIC R III	1.043	1.049	1.068	1.066
ASH GROVE R IV	1.013	1.015	1.022	1.023
WALNUT GROVE R V	.980	.983	.979	.977
STRAFFORD R VI	1.005	1.027	1.037	1.034
LOGAN R VIII	1.043	1.040	1.056	1.060
SPRINGFIELD R XII	1.120	1.091	1.122	1.096
FAIR GROVE R X	1.005	1.024	1.033	1.038
GRUNDY CO R V GALT	.966	.973	.966	.983
SPICKARD R II	.926	.904	.879	.903
PLEASANT VIEW R-VI	.926	.916	.894	.921
LAREDO R VII	.926	.936	.914	.936
TRENTON R IX	1.028	1.047	1.063	1.051
CAINSVILLE R I	.926	.931	.913	.908
SOUTH HARRISON R II	.990	1.031	1.040	1.043
NORTH HARRISON R III	.966	.989	.984	.992
GILMAN CITY R IV	.966	.960	.947	.959
RIDGEWAY R V	.926	.954	.941	.928
MARTINSVILLE R VI	.926	.894	.865	.881
MADISON R I	.989	1.035	1.043	1.035
SHAWNEE R III	.925	.938	.917	.928
CALHOUN R VIII	.925	.969	.956	.957
LEESVILLE R IX	.925	.931	.912	.931
DAVIS R XII	.925	.931	.912	.939
CLINTON	1.026	1.056	1.073	1.072
HICKORY CO R I	.984	1.016	1.019	1.028
WHEATLAND R II	.960	.953	.940	.944
BEAUMEAD R III	.960	.990	.985	.996
HERITAGE R IV	.960	.954	.941	.941
CRAIG R III	.983	.992	.983	.984
MOUND CITY R II	.983	1.005	1.003	.996
SOUTH HOLT R I	.983	1.006	1.008	1.012
NEW FRANKLIN R I	.969	.999	.999	.986
FAYETTE R III	.988	1.042	1.051	1.043
GLASGOW R II	.969	.990	.986	.988
MONELL VALLEY R-I	.973	.934	.915	.951
PEACE VALLEY C-2	.933	.870	.838	.861
NEW VIENNA BIRCH TREE R III	1.036	1.013	1.020	1.022
WILLOW SPRINGS R IV	1.036	1.009	1.014	1.019
RICHARDS R-V	.973	.962	.952	.972
WEST PLAINS R VII	1.036	1.021	1.031	1.031
GLENWOOD R VIII	.973	.954	.941	.966

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
MERAMEC VALLEY R III	1.153	1.135	1.329	.880
UNION R XI	1.153	1.122	1.297	.879
LONDELL R XIV	1.045	1.029	1.041	1.591
SPRING BLUFF R XV	1.045	.964	.937	1.596
STRAIN-JAPAN R-XVI	.976	.920	.840	1.109
ST CLAIR R XIII	1.153	1.107	1.254	1.040
SULLIVAN C 2	1.153	1.111	1.258	.873
NEW HAVEN	1.045	1.012	1.002	.450
WASHINGTON	1.167	1.135	1.317	.874
OWENSVILLE R II	1.050	1.057	1.144	1.120
BLAND R III	.952	.949	.868	.889
HERMANN R I	1.050	1.037	1.101	1.136
KING CITY R I	.972	.991	.964	.771
STARKENRY R II	.972	.999	.988	.896
ALBANY R III	1.012	1.020	1.046	.875
AILLARD R II	1.068	1.088	1.244	1.040
REPUBLIC R III	1.068	1.077	1.225	.967
ASH GROVE R IV	1.020	1.024	1.082	1.003
WALNUT GROVE R V	.968	.973	.953	.955
STRAFFORD R VI	1.007	1.042	1.119	.942
LOGAN R VIII	1.068	1.064	1.184	1.078
SPRINGFIELD R XII	1.189	1.144	1.355	.507
FAIR GROVE R X	1.007	1.038	1.103	1.096
GRUNDY CO R V GALT	.946	.957	.926	1.321
SPICKARD R II	.864	.850	.700	1.468
PLEASANT VIEW R-VI	.884	.869	.737	1.530
LAREDO R VII	.884	.899	.751	1.418
TRENTON R IX	1.044	1.074	1.190	.765
CAINSVILLE R I	.884	.892	.779	.919
SOUTH HARRISON R II	.984	1.048	1.106	1.057
NORTH HARRISON R III	.946	.983	.947	1.173
GILMAN CITY R IV	.946	.936	.851	1.229
RIDGEWAY R V	.864	.927	.852	.756
MARTINSVILLE R VI	.884	.833	.661	1.319
WINDSOR R I	.982	1.055	1.098	.849
SHANNEE R III	.882	.902	.758	1.214
CALHOUN R VIII	.882	.951	.844	1.014
LEESVILLE R IX	.882	.891	.776	1.378
DAVIS R XII	.882	.891	.777	1.539
CLINTON	1.041	1.088	1.206	.968
HICKORY CO R I	.974	1.025	1.031	1.175
WHEATLAND R II	.936	.926	.852	1.076
BEAUSLEAU R III	.936	.985	.938	1.21[illegible]
HERMITAGE R IV	.936	.927	.855	1.00[illegible]
CRAIG R III	.972	.987	.922	.9[illegible]
MOUND CITY R II	.972	1.007	.981	.858
SOUTH HOLT R I	.972	1.013	1.000	1.060
NEW FRANKLIN R I	.952	.999	1.000	.735
FAYETTE R III	.982	1.066	1.100	.860
GLASGOW R II	.952	.984	.958	1.032
MOBELL VALLEY R-I	.957	.896	.778	1.692
PEACE VALLEY C-2	.895	.795	.624	1.447
NEW VIEW BIRCH TREE R III	1.056	1.020	1.082	1.036
WILLOW SPRINGS R IV	1.056	1.013	1.065	1.086
RICHARDS R-V	.957	.940	.881	1.591
WEST PLAINS R VII	1.056	1.034	1.115	.990
GLENWOOD R VIII	.957	.928	.845	1.484

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
JUNCTION HILL C-12	.973	.935	.917	.957
FAIRVIEW R XI	.973	.962	.955	.977
SOUTH IRON R I	1.003	.996	.993	1.000
ARCADIA VALLEY R II	1.069	1.023	1.031	1.028
BELLEVIEW R III	1.003	.954	.943	.963
IRON CO C 4	1.029	1.005	1.008	1.008
FORT OSAGE R I	1.105	1.110	1.146	1.142
BLUE SPRINGS R IV	1.114	1.114	1.152	1.151
GRAIN VALLEY R V	1.035	1.045	1.059	1.058
OAK GROVE R VI	1.075	1.079	1.102	1.093
LEES SUMMIT R VII	1.107	1.118	1.155	1.155
HICKMAN MILLS C 1	1.109	1.124	1.164	1.160
RAYTOWN C 2	1.098	1.119	1.159	1.157
GRANDVIEW C 4	1.105	1.115	1.153	1.144
LONE JACK C 6	1.017	1.019	1.021	1.024
INDEPENDENCE	1.098	1.126	1.167	1.157
KANSAS CITY 33	1.084	1.160	1.199	1.164
CENTER 58	1.084	1.110	1.145	1.126
CARL JUNCTION R I	1.043	1.048	1.065	1.064
AVILLA R XIII	.979	.952	.943	.949
JASPER R V	1.004	.999	1.002	1.003
SARCOXIE R II	1.004	1.007	1.012	1.010
CARTHAGE R IX	1.043	1.054	1.077	1.061
WEBB CITY R VII	1.043	1.052	1.072	1.053
JOPLIN R VIII	1.066	1.078	1.106	1.077
NORTHWEST R I	1.128	1.130	1.167	1.166
GRANDVIEW R II	1.055	1.040	1.048	1.069
MILLSBORO R III	1.106	1.114	1.144	1.144
DUNKLIN R-V	1.097	1.098	1.124	1.118
FESTUS R VI	1.106	1.109	1.136	1.136
JEFFERSON R VII	1.055	1.054	1.064	1.075
SUNRISE R IX	1.028	1.005	1.003	1.023
AINSWORTH C 1	1.097	1.096	1.120	1.117
FOX C 6	1.121	1.133	1.171	1.167
CRYSTAL CITY 47	1.064	1.063	1.078	1.056
DE SOTO 73	1.106	1.123	1.154	1.149
KINGSVILLE R I	.988	1.002	1.000	.992
FARMERS R II	.947	.951	.934	.956
HOLDEN R III	1.052	1.052	1.068	1.068
CHILHOWEE R IV	.947	.963	.953	.953
CENTERVIEW R V	.988	.985	.982	1.002
KNOB NOSTER R VIII	.984	1.029	1.032	1.053
LEETON R X	.964	.990	.984	.979
WARRENSBURG R VI	1.026	1.056	1.076	1.061
KNOX CO R I	.972	1.035	1.043	1.047
COMPETITION C 2	.944	.877	.846	.852
CONWAY R I	1.010	.998	.999	1.009
GASCONADE C 4	.944	.936	.916	.940
LEBANON R III	1.049	1.037	1.054	1.045
LACLEDE CO C 5	1.010	.980	.976	.997
CONCORDIA R II	.964	.997	.998	.989
LAFAYETTE CO C 1	1.026	1.046	1.061	1.050
ODESSA R VII	1.052	1.078	1.102	1.099
LAFAYETTE CO R-X	.964	1.013	1.017	1.027
WELLINGTON NAPOLEON R IX	.988	1.032	1.040	1.035
LEXINGTON R V	1.049	1.077	1.098	1.084
MILLER R II	.984	1.008	1.015	1.023

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
JUNCTION HILL C-12	.957	.898	.785	1.787
FAIRVIEW R XI	.957	.940	.922	1.430
SOUTH IRON R I	1.005	.995	.971	1.123
ARCADIA VALLEY R II	1.108	1.037	1.094	.940
BELLEVIEW R III	1.005	.927	.873	1.397
IRON CO C 4	1.045	1.008	1.036	.991
FORT OSAGE R I	1.166	1.173	1.427	.912
BLUE SPRINGS R IV	1.179	1.179	1.439	.984
GRAIN VALLEY R V	1.055	1.071	1.160	.993
OAK GROVE R VI	1.118	1.124	1.278	.817
LEES SUMMIT R VII	1.166	1.185	1.438	.997
MICAMAN MILLS C 1	1.171	1.196	1.468	.909
RAYTOWN C 2	1.155	1.187	1.467	.964
GRANDVIEW C 4	1.166	1.162	1.439	.821
LONE JACK C 6	1.026	1.029	1.024	1.059
INDEPENDENCE	1.155	1.199	1.470	.822
KANSAS CITY 33	1.132	1.252	1.456	.332
CENTER 58	1.132	1.173	1.412	.533
CARL JUNCTION R I	1.067	1.075	1.208	.967
AVILLA R XIII	.968	.925	.890	1.119
JASPER R V	1.007	.998	1.035	1.030
SARCOXIE R II	1.007	1.011	1.065	.943
CARTHAGE R IX	1.068	1.086	1.258	.708
NEOSHO CITY R VII	1.068	1.082	1.235	.626
JOPLIN R VIII	1.104	1.123	1.326	.443
NORTHWEST R I	1.202	1.205	1.429	.988
GRANDVIEW R II	1.087	1.062	1.098	1.398
MILLSBORO R III	1.167	1.179	1.350	1.004
DUNKLIN R-V	1.153	1.154	1.308	.890
FESTUS R VI	1.167	1.172	1.316	.991
JEFFERSON R VII	1.087	1.085	1.120	1.219
SUNRISE R IX	1.045	1.008	.973	1.393
WINDSOR C 1	1.153	1.151	1.278	.954
FOX C 6	1.191	1.209	1.447	.925
CRYSTAL CITY 47	1.101	1.099	1.170	.575
DE SOTO 73	1.167	1.194	1.359	.901
KINGSVILLE R I	.980	1.002	.976	.861
FARMERS R II	.916	.923	.805	1.417
HOLDEN R III	1.082	1.081	1.193	.999
CHILHOWEE R IV	.916	.942	.884	.991
CENTERVIEW R V	.980	.977	.961	1.394
KNOB NOSTER R VIII	.975	1.045	1.046	1.406
LEETON R X	.944	.984	.928	.917
HARRISBURG R VI	1.041	1.089	1.227	.707
KNOX CO R I	.955	1.055	1.093	1.082
COMPETITION C 2	.912	.806	.639	1.123
CONWAY R I	1.016	.996	1.021	1.187
GASCONADE C 4	.912	.900	.769	1.459
LEBANON R III	1.077	1.059	1.192	.834
LACLEDE CO C 5	1.016	.969	.950	1.404
CONCORDIA R II	.944	.996	1.012	.826
LAFAYETTE CO C 1	1.041	1.072	1.174	.803
ODESSA R VII	1.082	1.122	1.284	.942
LAFAYETTE CO R-X	.944	1.021	1.043	1.188
WELLINGTON NAPOLEON R IX	.960	1.051	1.090	.896
LEXINGTON R V	1.077	1.121	1.237	.748
MILLER R II	.974	1.013	1.072	1.170

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
PIERCE CITY R VI	1.004	1.006	1.011	1.009
MARIONVILLE R IX	.984	1.011	1.015	1.004
MT VERNON R V	1.021	1.029	1.040	1.025
AURORA R VIII	1.021	1.049	1.064	1.050
VERONA R VII	.960	.984	.979	.975
CANTON R V	.968	.988	.989	.976
LEWIS CO C 1	1.004	1.023	1.033	1.038
SILEX R I	1.007	1.020	1.021	1.033
ELSBERRY R II	1.033	1.056	1.070	1.072
TRUX R III	1.073	1.082	1.108	1.107
WINFIELD R IV	1.033	1.074	1.092	1.097
BROOKING R I	.966	.996	.995	1.006
BUCKLIN R II	.948	.973	.964	.987
MEADVILLE R IV	.966	.964	.955	.971
MARCELINE R V	.990	1.018	1.024	1.012
BROOKFIELD R III	1.028	1.048	1.062	1.068
ANEELING R IV	.926	.945	.927	.909
SOUTHWEST R I	.966	.979	.972	.991
LIVINGSTON CO R III	.926	.955	.939	.952
CHILLICOTHE R II	1.028	1.062	1.082	1.071
MCDONALD CO R I	1.043	1.066	1.086	1.087
ELMER C 1	.910	.873	.841	.867
ATLANTA C 3	.948	.956	.943	.943
BEVIER C 4	.948	.956	.946	.941
MACON CO R II	.948	.980	.975	.971
MACON CO R I	1.008	1.032	1.043	1.038
CALLAO C 8	.910	.920	.900	.889
MACON CO R-IV	.948	.943	.929	.927	.959	1.050
MARMADUKE R VI	1.003	.968	.958	.959	1.047	1.007
FREDERICKTOWN R I	1.069	1.036	1.047	1.050	.990	.990
VIENNA R I	1.010	.992	.990	.990	.939	.949
BELLE R II	1.010	.991	.990	.939	1.011	1.002
MARION R-II	.944	.951	.939	1.003	1.044	1.061	1.050
PALMYRA R I	1.004	1.003	1.011	1.044	.970	.954	.963
HANNIBAL 60	1.004	1.044	1.061	.970	.928	.903	.892
NORTH MERCER R III	.926	.970	.954	.928	1.014	1.014	1.018
RAVANNA R IV	.926	.928	.903	1.014	1.019	1.029	1.026
PRINCETON R V	.990	1.014	1.014	1.019	.952	.939	.947
ELDON R I	1.049	1.019	1.029	.952	.955	.946	.954
TUSCUMBIA R III	.985	.952	.939	.955	.990	.991	.992
ST ELIZABETH R IV	.985	.955	.946	.990	.986	.985	.995
SCH OF THE OSAGE R II	1.010	.990	.991	.986	1.065	1.083	1.075
IBERIA R V	1.010	.986	.985	1.065	1.093	1.116	1.111
EAST PRAIRIE R II	1.069	1.065	1.083	1.093	1.018	1.025	1.011
CHARLESTON R I	1.056	1.093	1.116	1.018	.915	.893	.903
CALIFORNIA R I	.994	1.018	1.025	.915	.918	.894	.904
HIGH POINT R-III	.930	.915	.893	.918	1.010	1.013	1.001
LATHAM R-V	.930	.918	.894	1.010	.944	.930	.938
TIPTON R VI	.994	1.010	1.013	.944	.926	.907	.909
JAMESTOWN C 1	.969	.944	.930	.926	.876	.843	.885
CLARKSBURG C 2	.930	.926	.907	.876	1.032	1.041	1.033
MIDDLE GROVE C 1	.930	.876	.843	1.032	.949	.930	.955
MONROE CITY R I	.994	1.032	1.041	.949	.978	.972	.961
HOLLIDAY C 2	.930	.949	.930	.978	1.026	1.031	1.033
MADISON C 3	.969	.978	.972	1.026	1.016	1.020	1.019
PARIS R II	.994	1.026	1.031	1.016			
WELLSVILLE MIDDLETOWN R I	.994	1.016	1.020				

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
PIERCE CITY R VI	1.007	1.010	1.059	.957
MARIONVILLE R IX	.974	1.017	1.054	.780
MT VERNON R V	1.033	1.045	1.132	.723
AURORA R VIII	1.033	1.077	1.179	.724
VERONA R VII	.936	.974	.948	.922
CANTON R V	.949	.981	1.008	.750
LEWIS CO C 1	1.006	1.035	1.121	1.101
SILEX R I	1.010	1.032	1.011	1.237
ELSBERRY R II	1.051	1.087	1.165	1.046
TROY R III	1.115	1.129	1.302	.975
WINFIELD R IV	1.051	1.117	1.208	1.093
BROWNING R I	.946	.994	.982	1.207
MUCALIN R II	.918	.957	.900	1.454
MEADVILLE R IV	.946	.944	.898	1.301
MARCELINE R V	.984	1.028	1.069	.769
BROOKFIELD R III	1.044	1.076	1.164	1.103
WHEELING R IV	.884	.914	.794	.634
SOUTHWEST R I	.946	.966	.927	1.372
LIVINGSTON CO R III	.884	.930	.815	1.246
CHILLICOTHE R II	1.044	1.097	1.233	.801
MCDONALD CO R I	1.068	1.104	1.235	1.012
ELMER C 1	.858	.800	.620	1.513
ATLANTA C 3	.918	.931	.844	1.008
BEVIER C 4	.918	.930	.883	.918
MACON CO R II	.918	.969	.943	.914
MACON CO R I	1.013	1.051	1.120	.914
CALLAO C 8	.858	.874	.763	.784
MACON CO R-IV	.918	.910	.838	.959
MARQUAND R VI	1.005	.950	.884	1.012
FREDERICKTOWN R I	1.108	1.056	1.133	1.064
VIENNA R I	1.016	.987	.978	1.325
BELLE R II	1.016	.986	.987	1.002
MARION R-II	.912	.923	.959	1.189
PALMYRA R I	1.006	1.005	1.088	.829
HANNIBAL 60	1.006	1.069	1.209	.778
NORTH MERCER R III	.884	.952	.813	1.187
RAVANNA R IV	.884	.887	.708	.778
PRINCETON R V	.984	1.022	1.006	1.064
ELDON R I	1.077	1.031	1.109	.952
TUSCUMBIA R III	.976	.924	.845	1.172
ST ELIZABETH R IV	.976	.929	.895	1.152
SCH OF THE OSAGE R II	1.016	.985	1.006	1.021
IBERIA R V	1.016	.978	.981	1.197
EAST PRAIRIE R II	1.108	1.102	1.216	.849
CHARLESTON R I	1.088	1.147	1.266	.908
CALIFORNIA R I	.990	1.028	1.084	.740
HIGH POINT R-III	.890	.866	.745	1.193
LATHAM R-V	.890	.870	.729	1.186
TIPTON R VI	.990	1.016	1.037	.755
JAMESTOWN C 1	.952	.911	.839	1.155
CLARKSBURG C 2	.890	.883	.780	1.042
MIDDLE GROVE C 1	.890	.805	.610	1.822
MONROE CITY R I	.990	1.050	1.106	.847
HOLLIDAY C 2	.890	.920	.770	1.493
MADISON C 3	.952	.965	.934	.777
PARIS R II	.990	1.041	1.063	1.041
WELLSVILLE MIDDLETOWN R I	.990	1.025	1.051	.974

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
MONTGOMERY CO R II	1.032	1.051	1.068	1.070
STOVER R I	.989	1.015	1.019	1.023
VERSAILLES R II	1.026	1.036	1.048	1.054
RISCO R II	1.003	1.001	.997	1.018
GIDEON 37	1.029	1.024	1.032	1.024
NEW MADRID R I	1.069	1.115	1.145	1.139
EAST NEWTON R VI	1.043	1.040	1.055	1.060
DIAMOND R IV	1.004	1.010	1.017	1.019
WESTVIEW C 6	.939	.952	.936	.942
SENECA R VII	1.043	1.034	1.047	1.046
NEOSHO R V	1.043	1.064	1.086	1.080
NODAWAY-HOLT R VII	.983	1.007	1.006	1.024
A NODAWAY R I	1.008	1.013	1.014	1.023
N E NODAWAY R V	.983	.989	.983	.997
JEFFERSON C 123	.983	.962	.953	.966
NORTH NODAWAY R VI	.983	.988	.984	.993
MARYVILLE R II	1.046	1.038	1.053	1.044
SOUTH NODAWAY R IV	.983	.956	.945	.957
COUCH R I	.973	.965	.953	.966
THAYER R II	.997	.989	.987	.989
KOSHKONONG R III	.973	.960	.948	.951
ALTON R IV	.997	1.005	1.007	1.014
CHAMOIS R I	.989	.958	.946	.946
LINN R II	.994	.999	.999	1.002
WESTPHALIA R III	.994	1.004	1.007	1.016
THORNFIELD R-I	.933	.906	.878	.880
BAKERSFIELD R IV	.973	.949	.933	.941
GAINESVILLE R V	.997	.990	.989	.998
DORA R III	.973	.960	.947	.961
LUTIE R-VI	.933	.929	.908	.924
~~NORTH PEMISCOT R I~~	~~1.021~~	~~1.044~~	~~1.053~~	~~1.068~~
HAYTI R II	1.050	1.056	1.073	1.064
PEMISCOT CO R III	1.003	.991	.986	.990
COOTER R IV	1.003	.990	.986	.986
SOUTH PEMISCOT R V	1.023	1.044	1.057	1.046
PEMISCOT CO C 7	.995	1.022	1.024	1.029
CARUTHERSVILLE 18	1.060	1.066	1.086	1.057
PERRYVILLE 32	1.069	1.049	1.065	1.070
ALTENBURG 48	.961	.904	.879	.865
PETTIS CO R I	.925	.853	.815	.844
PETTIS CO R V	.964	.982	.979	.991
LAMONTE R IV	.964	.978	.975	.972
SMITHTON R VI	.989	1.005	1.010	1.007
GREEN RIDGE R VIII	.964	.993	.993	.988
PETTIS CO R XII	.925	.914	.892	.876
SEDALIA 200	1.024	1.083	1.109	1.090
ST JAMES R I	1.049	1.014	1.022	1.024
NEWBURG R II	1.010	.992	.992	.991
ROLLA 31	1.049	1.041	1.059	1.055
EDG[illegible]ARKINGS R III	.985	.946	.935	.948
SDALIA [illegible]SON R I	1.002	1.032	1.043	1.035
PIKE R III	.965	1.000	1.000	1.014
BOYCE R X	.906	.898	.873	.897
LOUISIANA R II	1.004	1.022	1.028	1.023
NORTH PLATTE R I	1.035	1.049	1.063	1.075
WEST PLATTE R II	1.035	1.052	1.068	1.069
PLATTE COUNTY R III	1.075	1.071	1.093	1.087

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
MONTGOMERY CO R II	1.050	1.081	1.191	1.047
STOVER R I	.982	1.024	1.047	1.071
VERSAILLES R II	1.041	1.057	1.139	1.115
MISCO R II	1.005	1.001	.961	1.395
GIDEON 37	1.045	1.038	1.087	.844
NEW MADRID R I	1.108	1.181	1.355	.877
EAST NEWTON R VI	1.068	1.063	1.166	1.099
DIAMOND R IV	1.007	1.016	1.083	1.040
WESTVIEW C 6	.904	.925	.816	1.105
SENECA R VII	1.068	1.054	1.151	.985
NEOSHO R V	1.068	1.101	1.261	.869
NODAWAY-HOLT R VII	.972	1.010	.991	1.355
R NODAWAY R I	1.012	1.021	1.007	1.167
N E NODAWAY R V	.972	.982	.937	1.264
JEFFERSON C 123	.972	.941	.894	1.243
NORTH NODAWAY R VI	.972	.982	.946	1.182
MARYVILLE R II	1.073	1.060	1.175	.831
SOUTH NODAWAY R IV	.972	.931	.873	1.232
COUCH R I	.957	.944	.859	1.266
THAYER R II	.996	.982	.978	1.035
KOSHKONONG R III	.957	.937	.858	1.064
ALTON R IV	.996	1.007	1.025	1.138
CHAMOIS R I	.952	.933	.870	.995
LINN R II	.990	.998	1.004	1.065
WESTPHALIA R III	.990	1.007	1.028	1.170
THORNFIELD R-I	.895	.852	.667	1.049
BAKERSFIELD R IV	.957	.919	.815	1.156
GAINESVILLE R V	.996	.985	.981	1.172
DORA R III	.957	.937	.845	1.270
LUTIE R-VI	.895	.889	.748	1.321
NORTH PEMISCOT R I	1.033	1.069	1.102	1.305
HAYTI R II	1.079	1.088	1.200	.828
PEMISCOT CO R III	1.005	.986	.940	1.073
COOTER R IV	1.005	.984	.949	1.002
SOUTH PEMISCOT R V	1.036	1.069	1.153	.784
PEMISCOT CO C 7	.992	1.034	1.028	1.088
CARUTHERSVILLE 18	1.095	1.103	1.235	.443
PERRYVILLE 32	1.108	1.077	1.192	1.092
ALTENBURG 48	.939	.849	.710	.727
PETTIS CO R I	.882	.768	.558	1.570
PETTIS CO R V	.944	.971	.969	1.231
LAMONTE R IV	.944	.966	.957	.944
SMITHTON R VI	.982	1.008	1.055	.946
GREEN RIDGE R VIII	.944	.988	1.009	.893
PETTIS CO R XII	.882	.865	.739	.692
SEDALIA 200	1.037	1.130	1.310	.634
ST JAMES R I	1.077	1.022	1.059	1.045
NEWBURG R II	1.016	.987	1.000	.994
ROLLA 31	1.077	1.065	1.200	.925
EDGAR SPRINGS R III	.976	.915	.874	1.252
BOWLING GREEN R I	1.003	1.050	1.131	.848
PIKE R III	.945	1.000	.993	1.282
BONCL R X	.853	.840	.704	1.457
LOUISIANA R II	1.006	1.034	1.074	.899
NORTH PLATTE R I	1.055	1.077	1.158	1.231
WEST PLATTE R II	1.055	1.081	1.186	1.026
PLATTE COUNTY R III	1.118	1.111	1.258	.891

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
PARK HILL R V	1.105	1.109	1.145	1.145
BOLIVAR R I	1.021	1.040	1.054	1.051
FAIR PLAY R II	.960	.972	.966	.961
HALFWAY R III	.960	.981	.975	.982
HUMANSVILLE R IV	.960	.992	.989	.984
MARION C EARLY R V	.984	1.002	1.003	1.009
PLEASANT HOPE R VI	.984	1.013	1.018	1.018
SWEDEBORG R III	.944	.879	.851	.869
RICHLAND R IV	1.010	.974	.971	.972
LAQUEY R V	1.010	.955	.947	.958
WAYNESVILLE R VI	1.043	1.015	1.022	1.039
[illegible] PINEY R VII	.944	.811	.766	.785
DIXON R I	1.049	.988	.991	.991
CROCKER R II	1.009	.963	.958	.960
UNIONVILLE R I	1.008	1.026	1.033	1.037
RALLS CO R II	1.004	1.024	1.032	1.035
NORTHEAST R IV	.969	.968	.960	.977
RENICK R V	.969	.952	.938	.958
CLARK R VI	.930	.908	.885	.884
HIGBEE R VIII	.969	.950	.939	.930
WESTRAN R I	.994	1.008	1.013	1.017
ADOBERLY	1.032	1.058	1.077	1.064
STET R XV	.947	.958	.946	.950
LARSON R XIV	1.013	1.050	1.066	1.065
ORRICK R XI	1.013	1.031	1.038	1.032
HARDIN CENTRAL C 2	.988	1.010	1.010	1.000
RICHMOND R XVI	1.052	1.083	1.107	1.107
CENTERVILLE R I	.973	.930	.912	.927
SOUTHERN R II	.997	.988	.987	.994
BUNKER R III	.973	.981	.975	.976
LESTERVILLE R IV	.973	.977	.969	.971
NAYLOR R II	1.003	.983	.978	.980
DONIPHAN R I	1.069	1.039	1.051	1.052
RIPLEY CO R IV	.973	.959	.945	.970
GATEWOOD R III	.933	.931	.907	.939
FT ZUMWALT	1.138	1.097	1.133	1.126
FRANCIS HOWELL R III	1.138	1.108	1.144	1.143
WENTZVILLE R IV	1.097	1.085	1.116	1.115
ST CHARLES	1.122	1.115	1.152	1.131
ST CHARLES CO R V	1.097	1.076	1.101	1.110
APPLETON CITY R II	.982	.988	.986	.980
ROSCOE C 1	.982	.934	.912	.946
LAKELAND R III	.982	1.007	1.006	1.003
OSCEOLA	.982	.984	.981	.983
BISMARCK R V	1.033	1.021	1.029	1.018
FARMINGTON R VII	1.073	1.069	1.093	1.083
KNOB LICK C 1	.965	.908	.885	.912
LIBERTYVILLE C 2	.965	.875	.843	.851
NORTH COUNTY R I	1.073	1.064	1.087	1.077
ST FRANCOIS CO R III	1.073	1.062	1.083	1.087
LEADWOOD R IV	1.033	1.040	1.051	1.045
STE GENEVIEVE R II	1.073	1.069	1.089	1.091
CUFFMAN R V	.965	.922	.900	.936
HAZELWOOD	1.116	1.141	1.186	1.167
FERGUSON R II	1.122	1.145	1.191	1.161
PATTONVILLE R III	1.121	1.146	1.191	1.186
ROCKWOOD R VI	1.121	1.144	1.189	1.187

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
PARK HILL R V	1.166	1.172	1.422	.991
SULLIVAN R I	1.033	1.063	1.157	.951
FAIR PLAY R II	.936	.955	.928	.918
HALFWAY R III	.936	.969	.935	1.139
HUMANSVILLE R IV	.936	.988	.967	.903
MARION C EARLY R V	.974	1.003	1.009	1.117
PLEASANT HOPE R VI	.974	1.021	1.057	1.006
SWEDEBORO R III	.912	.809	.678	1.352
RICHLAND R IV	1.016	.959	.964	1.031
LAQUEY R V	1.016	.930	.906	1.198
WAYNESVILLE R VI	1.068	1.023	1.084	1.331
BIG PINEY R VII	.912	.702	.484	1.351
DIXON R I	1.077	.982	1.030	1.000
CHOCKER R II	1.014	.942	.945	1.040
UNIONVILLE R I	1.013	1.042	1.082	1.075
HALLS CO R II	1.006	1.038	1.094	1.051
NORTHEAST R IV	.952	.950	.910	1.313
RENICK R V	.952	.924	.843	1.372
CLARK R VI	.890	.855	.732	.981
MISHEE R VIII	.952	.922	.872	.818
WESTRAN R I	.990	1.013	1.057	1.072
MOBERLY	1.050	1.091	1.218	.766
STET R XV	.916	.935	.854	1.084
LAWSON R XIV	1.020	1.079	1.150	.970
ORRICK R XI	1.020	1.048	1.081	.888
HARDIN CENTRAL C 2	.980	1.016	.995	.806
RICHMOND R XVI	1.082	1.130	1.263	1.000
CENTERVILLE R I	.957	.890	.789	1.289
SOUTHERN R II	.996	.981	.968	1.138
BUNKER R III	.957	.970	.931	1.016
LESTERVILLE R IV	.957	.964	.904	1.049
NAYLOR R II	1.005	.973	.938	1.034
DONIPHAN R I	1.108	1.062	1.134	1.016
RIPLEY CO R IV	.957	.935	.840	1.487
GATEWOOD R III	.895	.892	.717	1.627
FT ZUMWALT	1.217	1.153	1.415	.863
FRANCIS HOWELL R III	1.217	1.169	1.420	.992
WENTZVILLE R IV	1.153	1.134	1.358	.978
ST CHARLES	1.192	1.181	1.438	.595
ST CHARLES CO R V	1.153	1.120	1.285	1.185
APPLETON CITY R II	.972	.981	.977	.892
ROSCOE C 1	.908	.895	.749	1.665
LAKELAND R III	.972	1.011	.987	.943
OSCEOLA	.972	.975	.963	1.036
BISMARCK R V	1.051	1.033	1.094	.783
FARMINGTON R VII	1.115	1.109	1.274	.816
KNOB LICK C 1	.944	.856	.724	1.518
LIBERTYVILLE C 2	.944	.803	.623	1.172
NORTH COUNTY R I	1.115	1.101	1.265	.807
ST FRANCOIS CO R III	1.115	1.096	1.241	1.072
LEADWOOD R IV	1.051	1.063	1.125	.902
STE GENEVIEVE R II	1.115	1.108	1.234	1.053
COFFMAN R V	.944	.877	.744	1.702
HAZELWOOD	1.182	1.223	1.527	.628
FERGUSON R II	1.192	1.229	1.531	.433
PATTONVILLE R III	1.191	1.230	1.523	.913
ROCKWOOD R VI	1.191	1.227	1.521	.956

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
KIRKWOOD R VII	1.124	1.141	1.184	1.160
LINDBERGH R VIII	1.122	1.141	1.165	1.187
MEHLVILLE R IX	1.131	1.142	1.188	1.166
PARKWAY	1.117	1.148	1.193	1.176
AFFTON 101	1.097	1.124	1.162	1.159
BAYLESS	1.097	1.105	1.139	1.130
LADUE	1.097	1.135	1.176	1.156
MAPLEWOOD RICHMOND HGHTS	1.099	1.127	1.164	1.137
NORMANDY	1.109	1.169	1.215	1.196
RIVERVIEW GARDENS	1.138	1.141	1.165	1.168
UNIVERSITY CITY	1.116	1.185	1.230	1.191
VALLEY PARK	1.064	1.109	1.129	1.112
WEBSTER GROVES	1.132	1.151	1.194	1.156
WELLSTON	1.076	1.143	1.177	1.150
MIAMI R I	.925	.945	.930	.952
CENTRAL R-II	.925	.881	.849	.874
GREARVILLE R-IV	.925	.913	.890	.926
MALTA BEND R V	.964	.989	.983	.978
MARDEMAN R-X	.925	.915	.891	.910
GILLIAM C 4	.925	.897	.869	.901
MARSHALL	1.026	1.078	1.102	1.067
SLATER	.961	1.021	1.024	.983
SWEET SPRINGS R VII	.989	1.009	1.013	.998
SCHUYLER CO R I	.972	1.027	1.034	1.036
GORIN R III	.910	.911	.887	.883
RUTLEDGE R IV	.910	.857	.820	.820
BIBLE GROVE R V	.910	.830	.787	.821
GRANGER C 1	.910	.841	.800	.787
SCOTLAND CO R I	.972	1.013	1.018	1.023
ILLMO SCOTT CITY R I	1.069	1.030	1.042	1.043
CHAFFEE R II	1.029	1.010	1.016	.993
SCOTT CO R IV	1.029	1.008	1.016	1.025
SCOTT CO R-V	1.029	1.016	1.021	1.025
SIKESTON R VI	1.064	1.072	1.098	1.093
KELSO C 7	1.003	.951	.941	.948
ORAN R III	1.003	1.000	1.002	.991
NEWMA R III	.973	.997	.994	.995
EMINENCE R I	.973	.986	.981	.983
SHELBY CO C 1	.968	.986	.984	.993
SHELBY CO R IV	1.004	1.008	1.014	1.013
RICHLAND R I	1.029	1.028	1.036	1.043
BELL CITY R II	1.003	1.003	1.003	.998
ADVANCE R IV	1.029	1.011	1.014	1.016
PUXICO R VIII	1.029	1.020	1.026	1.024
BLOOMFIELD R XIV	1.029	1.025	1.033	1.026
DEXTER R XI	1.069	1.058	1.078	1.064
BERNIE R XIII	1.029	1.034	1.043	1.035
HURLEY R I	.921	.960	.944	.958
GALENA R II	.960	1.006	1.005	1.015
CRANE R III	.984	1.006	1.008	1.014
REEDS SPRING R IV	.984	1.029	1.036	1.042
BLUE EYE R V	.960	.988	.983	.989
GREEN CITY R I	.948	.969	.963	.963
MILAN C 2	.972	1.000	1.000	.992
NEATOWN HARRIS R III	.910	.911	.887	.891
BRADLEYVILLE R I	.921	.962	.943	.958
TANEYVILLE R II	.921	.919	.898	.907

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
KIRKWOOD R VII	1.195	1.222	1.506	.527
LINDBERGH R VIII	1.192	1.222	1.521	1.029
MEHLVILLE R IX	1.207	1.224	1.527	.960
PARKWAY	1.164	1.234	1.525	.668
AFFTON 101	1.153	1.195	1.447	.935
BAYLESS	1.153	1.165	1.396	.823
LADUE	1.153	1.212	1.475	.625
MAPLEWOOD RICHMOND HGHTS	1.156	1.201	1.422	.494
NORMANDY	1.171	1.266	1.537	.634
RIVERVIEW GARDENS	1.217	1.222	1.509	.681
UNIVERSITY CITY	1.163	1.291	1.551	.238
VALLEY PARK	1.101	1.171	1.240	.671
WEBSTER GROVES	1.208	1.238	1.498	.268
WELLSTON	1.120	1.226	1.392	.473
MIAMI R I	.882	.914	.824	1.426
CENTRAL R-II	.882	.813	.624	1.480
GREENVILLE R-IV	.862	.864	.722	1.705
MALTA BEND R V	.948	.983	.925	.904
MARSHALL R-X	.882	.865	.725	1.363
GILLIAM C 4	.882	.838	.672	1.620
MARSHALL	1.041	1.123	1.275	.322
SLATER	.938	1.032	1.037	.221
SWEET SPRINGS R VII	.962	1.014	1.050	.716
SCHUYLER CO R I	.955	1.043	1.074	1.052
GOWIN R III	.858	.860	.721	.929
HUTTLEDGE R IV	.858	.775	.564	.996
BIBLE GROVE R V	.858	.733	.494	1.661
GRANGER C 1	.858	.750	.522	.746
SCOTLAND CO R I	.955	1.021	1.052	1.113
ILLMO SCOTT CITY R I	1.108	1.048	1.142	1.014
CHAFFEE R II	1.045	1.016	1.065	.565
SCOTT CO R IV	1.045	1.013	1.085	1.188
SCOTT CO R-V	1.045	1.025	1.057	1.082
SIKESTON R VI	1.101	1.114	1.300	.900
KELSO C 7	1.005	.924	.876	1.138
ORAN R III	1.005	1.000	1.019	.790
BENDA R III	.957	.995	.960	1.028
EMINENCE R I	.957	.979	.938	1.134
SHELBY CO C 1	.949	.978	.970	1.185
SHELBY CO R IV	1.006	1.012	1.070	.990
RICHLAND R I	1.045	1.045	1.086	1.140
BELL CITY R II	1.005	1.005	1.002	.886
ADVANCE R IV	1.045	1.017	1.044	1.025
PUXICO R VIII	1.045	1.031	1.075	.959
BLOOMFIELD R XIV	1.045	1.040	1.095	.856
DEXTER R XI	1.108	1.091	1.237	.717
BERNIE R XIII	1.045	1.054	1.108	.844
HURLEY R I	.875	.936	.813	1.200
GALENA R II	.936	1.009	.990	1.190
CRANE R III	.974	1.010	1.013	1.125
REEDS SPRING R IV	.974	1.045	1.091	1.101
BLUE EYE R V	.936	.981	.946	1.114
GREEN CITY R I	.918	.952	.922	1.004
MILAN C 2	.955	1.000	1.001	.853
VENTURA HARRIS R III	.858	.859	.727	1.078
BRADLEYVILLE R I	.875	.941	.776	1.287
TANEYVILLE R II	.875	.872	.759	1.167

BEST COPY AVAILABLE

District Name	Cost Index Based on Simple Teachers' Salary Index	Cost Index Based on Alternative Teachers' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index	Cost Index Based on Alternative Teachers' and Administrators' Salary Index and on Transportation Cost Index
FORSYTH R III	.960	.974	.970	.971
BRANSON R IV	1.021	1.021	1.030	1.024
HOLLISTER R V	.984	.995	.994	.990
KIRBYVILLE R VI	.921	.903	.879	.903
CEDAR CREEK R VII	.921	.874	.841	.876
MARK TWAIN R VIII	.921	.883	.853	.903
SUCCESS R VI	.985	.916	.898	.920
HOUSTON R I	1.036	.985	.967	.983
SUMMERSVILLE R II	.997	.968	.963	.971
LICKING R VIII	1.010	.982	.981	.983
CABOOL R IV	1.036	.987	.989	.985
PLATO R V	.985	.953	.947	.961
RAYMONDVILLE R VII	.973	.913	.895	.912
METZ R II	.982	.932	.911	.922
GALAER R IV	.982	.955	.945	.945
NEVADA R V	1.046	1.053	1.070	1.057
BRONAUGH R VII	.982	.958	.946	.961
SHELDON R VIII	.947	.947	.930	.926
SCHELL CITY R I	.982	.948	.935	.922
NIGHT CITY R II	1.033	1.054	1.069	1.057
HARRISON R III	1.073	1.071	1.092	1.088
KINGSTON 14	1.033	1.026	1.029	1.055
POTOSI R III	1.073	1.074	1.096	1.099
RICHWOODS R VII	1.007	.980	.970	.986
VALLEY R VI	.985	.981	.976	.988
GREENVILLE R II	1.029	1.015	1.019	1.024
CLEARWATER R I	1.069	1.027	1.034	1.042
NIANGUA R V	.960	.991	.987	.986
FORDLAND R III	.960	.999	.999	1.003
MARSHFIELD R I	1.021	1.047	1.063	1.067
SEYMOUR R II	.984	1.022	1.028	1.032
NORTH R I	1.008	1.029	1.032	1.045
NORWOOD R I	.960	.958	.946	.962
MARTVILLE R II	.984	1.019	1.022	1.028
MOUNTAIN GROVE R III	1.021	1.034	1.046	1.047
MANSFIELD R IV	.984	.996	.999	.999
WAMES R V	.921	.914	.892	.893
ST LOUIS CITY	1.108	1.171	1.210	1.167
	.000	.000	.000	.000

BEST COPY AVAILABLE

District Name	Simple Teachers' Salary Index	Alternative Teachers' Salary Index	Alternative Administrators' Salary Index	Transportation Cost Index
FORSYTH R III	.936	.950	.948	1.022
BRANSON R IV	1.033	1.033	1.106	.885
HOLLISTER R V	.974	.992	.990	.926
KIRBYVILLE R VI	.875	.848	.711	1.461
CEDAR CREEK R VII	.875	.801	.621	1.679
MARK TWAIN R VIII	.875	.815	.647	1.985
SUCCESS R VI	.976	.867	.798	1.429
HOUSTON R I	1.056	.976	1.023	.928
SOMERSVILLE R II	.996	.949	.947	1.155
LICKING R VIII	1.016	.971	.992	1.043
CABOOL R IV	1.056	.979	1.030	.923
PLATO R V	.976	.926	.928	1.287
RAYMONDVILLE R VII	.957	.862	.791	1.345
METZ R II	.908	.892	.761	1.216
WALKER R IV	.972	.929	.878	1.002
NEVADA R V	1.072	1.083	1.192	.756
BRUNAUGH R VII	.972	.935	.860	1.274
SHELDON R VIII	.908	.916	.807	.921
SCHELL CITY R I	.972	.918	.853	.741
WRIGHT CITY R II	1.051	1.085	1.173	.784
WARRENTON R III	1.115	1.111	1.244	.924
KINGSTON 14	1.051	1.040	1.045	1.505
POTOSI R III	1.115	1.117	1.251	1.067
RICHWOODS R VII	1.010	.968	.889	1.299
VALLEY R VI	.976	.970	.944	1.227
GREENVILLE R II	1.045	1.023	1.055	1.080
CLEARWATER R I	1.108	1.043	1.060	1.158
NIANGUA R V	.936	.986	.956	.970
FORDLAND R III	.936	.998	1.001	1.079
MARSHFIELD R I	1.033	1.073	1.187	1.091
SEYMOUR R II	.974	1.034	1.067	1.088
NORTH R I	1.012	1.045	1.042	1.246
NORWOOD R I	.936	.935	.852	1.321
MARTVILLE R II	.974	1.030	1.040	1.110
MOUNTAIN GROVE R III	1.033	1.054	1.137	1.026
MANSFIELD R IV	.974	.994	1.029	1.007
MANES R V	.875	.865	.744	1.024
ST LOUIS CITY	1.170	1.270	1.450	.174
	.000	.000	.000	.000

BEST COPY AVAILABLE

WORKING PAPERS IN EDUCATION FINANCE

Education Finance Center
Education Programs Division
Education Commission of the States
1860 Lincoln Street, Suite 300
Denver, Colorado 80295
(303) 830-3820

Paper No. 1 William D. Hyde, Jr., "The Effect of Tuition and Financial Aid on Access and Choice in Postsecondary Education." January 1978.

Paper No. 2 John Augenblick. "Financing Community Colleges: An Examination of the State and Local Roles." January 1978.

Paper No. 3 Frank A. Schmidtlein and Joseph J. Popovich, Jr. "Higher Education Finance Issues in a Period of Transition." February 1978.

Paper No. 4 John Minter. "The Financial Assessment of Colleges and Universities and Its Implications for State Policy." February 1978.

Paper No. 5 Susan C. Nelson. "The Equity of Public Subsidies for Higher Education: Some Thoughts on the Literature." February 1978.

Paper No. 6 John B. Lee. "Interstate Distribution of Student Financial Aid Funds." June 1978.

Paper No. 7 Jay G. Chambers. "An Analysis of Education Costs Across Local School Districts in the State of Missouri, 1975-76." February 1978.

Paper No. 8 Allan Odden. "School Finance in Colorado: An Update." November 1978.

Paper No. 9 Jay G. Chambers and Phillip E. Vincent. "Geographic Cost-of-Education Differentials." February 1978.

Paper No. 10 Lawrence Vescera. "An Examination of the Flow of Title I and State Compensatory Education Aid and Their Effect on Equalization in Four States: Florida, New Jersey, New York and Texas." February 1978.

Paper No. 11 Allan Odden. "School Finance Reform in Michigan and Missouri: Impact on Suburban School Districts." September 1977.

Paper No. 12 Phillip E. Vincent. "Tax Base Composition and Family Income in Measuring School District Fiscal Capacity." March 1978.

Paper No. 13 Phillip E. Vincent and E. Kathleen Adams. "An Analysis of Potential Additional Measures of Fiscal Capacity of South Dakota School Districts." May 1978.

Paper No. 14 William D. Hyde, Jr. "Student Financial Aid Proposals and the Middle Income "Squeeze": Tax Credits or Expansion of Basic Grants." June 1978.

Paper No. 15 E. Kathleen Adams and Phillip E. Vincent. "Fiscal Response of School Districts to District Fiscal Capacity and State Aid." June 1978.

Paper No. 16 Phillip E. Vincent. "School Finance Reforms and Big-City Fiscal Problems." July 1978.

Paper No. 17 Robert Berne and Leanna Stiefel. "A Methodological Assessment of Education Equality and Wealth Neutrality Measures." July 1978.

Paper No. 18 James J. Kloss. "The Sword and the Meat-Ax: Serrano, Proposition 13 and the Shaping of School Finance in California." October 1978.

Paper No. 19 Robert Berne and Leanna Stiefel. "The Measurement of Equity in School Finance with an Expenditure Disparity Measure." November 1978.

Paper No. 20 Allan Odden. "Voter Attitudes Toward Government and Spending." 1978.

Paper No. 21 Allan Odden. "State and Federal Pressures for Equity and Efficiency in Education Financing." (April 1979). Revised September 1980.

Paper No. 22 William D. Hyde, Jr. "State Guarantee Agencies and Capital Availability for Student Loans." July 1979.

Paper No. 23 C. Kent McGuire. "Education Vouchers." June 1979.

Paper No. 24 E. Kathleen Adams. "The Impact of Federal Aid on the Distribution of State Aid." December 1979.

Paper No. 25 Robert Palaich, James Kloss and Mary Frase Williams. "The Politics of Tax and Expenditure Limitations: An Analysis of Public Opinion, Voting Behavior and the Campaigns in Four States." March 1980.

Paper No. 26 Wayne Wendling. "The Cost of Education Index: Measurement of Price Differences of Education Personnel Among New York State School Districts." April 1980.

Paper No. 27 Wayne Wendling and Judith Cohen. "The Relationship of Education Resources to Student Achievement Levels in New York State." April 1980.

Paper No. 28 Allan Odden and C. Kent McGuire. "Financing Educational Services for Special Populations: The State and Federal Roles." April 1980.

Paper No. 29 E. Kathleen Adams. "Municipal Overburden: The Concept and Some New Evidence." June 1980.

Paper No. 30 Wayne Wendling. "Equity Implications of Methods of Funding State Teachers' Retirement Systems." July 1980.

Paper No. 31 Wayne Wendling. "Administrative Agencies: Issues and Problems in Public Education Collective Bargaining." July 1980.

Paper No. 32 William D. Hyde, Jr. "The Age and Related Demographic Characteristics of Students Attending Community Colleges and Four-Year Institutions." September 1980.

Paper No. 33 William D. Hyde, Jr. "State Fiscal Constraints in Higher Education." January 1981.

Paper No. 34 C. Kent McGuire. "Choice in Elementary and Secondary Education." February 1981.

Paper No. 35 Education Finance Center. "Revenues, Expenditures and Tax Burdens: A Comparison of the Fifty States." April 1981.

Paper No. 36 Allan Odden. "Public School Finance: Prognosis for the 1980s." August 1980.

Paper No. 37 William Hyde. "Data Sources on the Economic, Demographic and Educational Characteristics of Adults and Implications for Lifelong Learning." October 1981.

Paper No. 38 John Augenblick. "School Finance: Past, Present and Future Issues in the States." October 1981.

Paper No. 39 Allan Odden. "School Finance Reform: An Example of Redistributive Education Policy at the State Level." January 1982.